# PURCHASING

The Methods Magazine for Industrial Buyers

# Practical Help for PA's

\*\*Simple Techniques for Controlling Inventory page 77

\*\*We Cut Purchasing Costs Three Ways" page 83

\*\*How to Analyze Capital Equipment Purchases page 93

\*\*Clear Specifications Help Buyer, Vendor, User page 100

\*\*Is Purchasing Ready for Psychological Testing? page 118

\*\*MRO Value Analysis Pays Off page 130

Plus 14 Other Informative Articles

Table of Contents .... page 5

# Why does the instruction plate on this famous motor specify a Texaco lubricant? LUBRICATION INSTRUCTIONS LUBRICATE WITH A GOOD GRADE OF TRANSMISSION LUBRICANT. DRAIN AND FLUSH EVERY 750 HOURS OF OPERATION. WE RECOM-MEND TEXACO MARFAK OD WHICH HAS BEEN TESTED AND APPROVED: OR A SIMILAR NON-FLUID LUBRICANT. THE BROWN-BROCKMEYER CO., INC. DAYTON 1, OHIO, U.S.A

For that matter, why are Texaco Lubricants linked with so many of the "household" names in industry?

Brown-Brockmeyer Company, Dayton, O., motor manufacturers, can tell you why:

"Texaco Lubricants assure superior performance and utmost reliability under all conditions. Furthermore, Texaco Lubrication Engineers render high-quality service—the type of expert assistance that can help you, too, make your product the best in its field."

Brown-Brockmeyer Company should know. Every gearhead motor made in their plant during the past twenty years has left with *Texaco Marfak 00* in its gears—and with a nameplate recommending continued use of *Texaco Marfak 00* for optimum performance and service.

Texaco Lubricants and Texaco Lubrication Engineers can be a big help to you—both in the operation of your own plant and in the success of your product in the field. Call the nearest of more than 2000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd St., New York 17, N. Y.



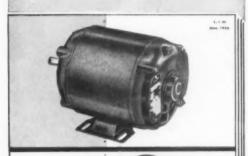
**TEXACO** Lubricants, Fuels and Lubrication Engineering Service

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on



# INDUSTRIAL QUALITY...FRACTIONAL H.P. ELECTRIC MOTORS



INDUSTRIAL QUALITY
FRACTIONAL
HORSEPOWER
#8 FRAME AND
56 FRAME
1/20 to 1 HORSEPOWER

OFFIR AND ENCLOSES THESE FAGET 2 FG 8 MECHANICAL RESISTIONS FAGE 7 Quitary.

Performance Rated

A NEW CONSOLIDATED LINE OF INDUSTRIAL QUALITY ELECTRI MOTORS, NEW AND IMPROVED MATERIALS, DESIGNS AND OPERATING FRATURES

Performance Rated
MOTORS
Complete Line



Mail Coupon Today for your personal copy of this informative book Right at your desk, make a detailed inspection of Century's Fractional H.P. single phase and polyphase line of motors, designed to latest NEMA standards! This fact-filled new book gives you the comprehensive story on Century's new 48-Frame and 56-Frame INDUSTRIAL QUALITY Motors...tells how and why they're better performers than the older models, why they weigh less, take less space, are easier to handle.

Motor types and mountings are described, stator and rotor construction, how to select proper torque and speed...and many other facts to help you choose the right motors for top performance...all along the line!

To CENTURY ELECTRIC COMPANY

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Performance - Rated MOTORS
1/20 to 400 H.P.



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For More Information Circle No. 154 on Inquiry Card-Page 17

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### **B.F.Goodrich** report:



# Hose swallows chips off the granite block

#### B. F. Goodrich improvements in rubber brought extra savings

Problem: That workman is cutting and finishing a granite block for a building front. As he chisels and grinds, the chips and dust are collected by the hose and carried away. Fine, except that the company was throwing hose away every year or so. The sharp, destructive granite chips wore holes through every kind of rubber hose tried.

What was done: A B.F.Goodrich man heard about the trouble, and recommended a hose, specially developed by B.F. Goodrich to stand this rough treatment. It is made with a special lining of the toughest, wear-resisting rubber known. It is so tough that, on many jobs, this rubber outlasts the hardest steel 10 to 1.

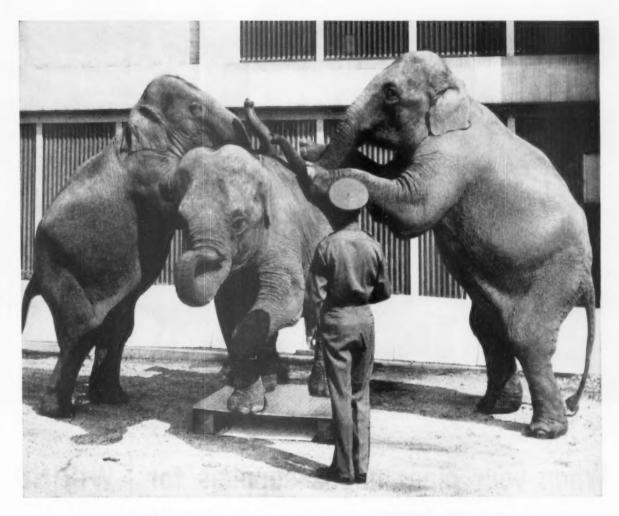
Savings: The B.F. Goodrich suction hose was tried. It has now given more than 51/2 years' service, and shows no signs of wearing out. In fact, the plant engineer says he expects several more years' use from the hose, and he's replacing all other brands with B. F. Goodrich.

Extra benefits: In addition to making this hose stand more abuse, B. F. Goodrich engineers have also made it flexible, easy to handle. A coil of round steel wire, buried in the hose, keeps it from crushing, kinking or collapsing.

Where to buy: Your B.F. Goodrich distributor has exact specifications for the B.F. Goodrich hose described here. And, as a factory-trained specialist in rubber products, he can answer your questions about all the rubber products B.F. Goodrich makes for industry. B. F. Goodrich Industrial Products Co., Dept. M-961, Akron 18, Ohio.



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tion and cleanability provide you with a combination of features unequalled by any other materials. Where can you use Inland 4-WAY Safety Plate? There are dozens of places in every plant where it can pay off in man hours saved . . . in providing safer, cleaner surfaces . . . in boosting general efficiency. For helpful suggestions and useful information, write to Dick Prendergast, Room 1262.

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Connecting the leads for a motor control panel, resetting a reconditioned drive motor, or running in some new bench outlets for power driven hand tools give you or your elec-

trical contractor perfect opportunities to benefit by Graybar service. Your nearest Graybar warehouse has - ready for prompt delivery - the right product for every wiring need.

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For More Information Circle No. 157 on Inquiry Card-Page 17

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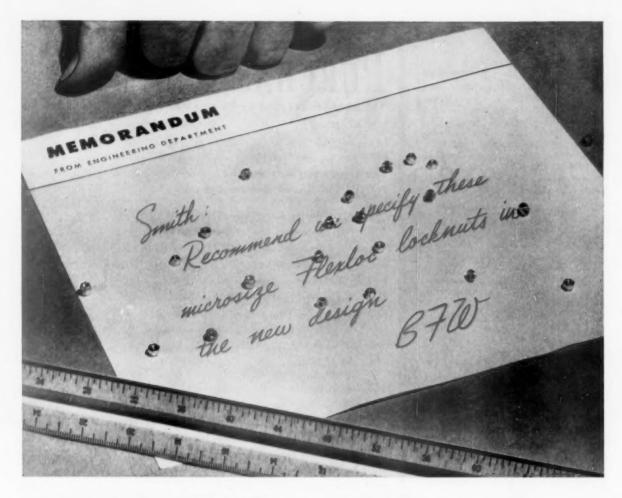
Published for and read by the men who buy for American Industry VOL. 42, No. 6 JUNE, 1957

	Loyalty to the Small Supplier	73
	Simple Techniques for Controlling Inventory M. H. Mathewson	77
	PURCHASING Reports on Purchasing Opinion: What's Happening to Small Business?	81
	"We Cut Purchasing Costs Three Ways"	83
	3-Man Department Uses Special Buying Methods	87
	Expediting System Keeps Close Tab on VendorsNed Kellogg	90
	How to Analyze Capital Equipment Expenditures J. B. Quinn .	. 93
	No Cool Heels in This Reception Room	.96
	Purchasing for the Guided Missile Program	98
	Clear Specifications Help Buyer, Vendor, User	100
	Steel: Buyers Breathe Easier But Keep Guard Up	102
	New and Notable	105
	The Pulse of Business Commodity and Business Trends	107
	Organization and the Purchasing Agent E. S. Page	115
	Is Purchasing Ready for Psychological Testing?	118
	Suppliers Visit the Buyers	121
	A Catalog System for Three Million Items A. N. Wecksler	122
	Profitable Uses of Pressure Sensitive TapesR. W. Mueller	125
	ADP: Your Order Processed in Minutes	128
	MRO Value Analysis Pays Off for TVA	130
	Discounts, Discrimination and The Robinson-Patman Act A. W. Gray	136
	Blanket Purchase Orders P. F. Stolpman	212
	MONTHLY FEATURES	
	Washington Report	13
	Information for Your Catalog Files	17
	Suppliers in the News	22
	F.O.B.	28
	Highlights	75
	Ideas You Can Use	144
	New Products	150
	Office Equipment and Supplies	212
	Association News	226
	Purchasing People in the News	268
	Industry Developments	294
	Classified Department	342
	Letters to the Editor	344
ı	Index to Advertisers	346

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To get further information on anything mentioned in this issue, use Reader Service Card opposite page 17

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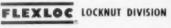


# Microsize FLEXLOC locknuts help you design smaller assemblies and fasten them securely

	Acros	s Flats	Hex. Height	Across Corners	Height	
SIZE	MAX.	MIN.	REF.	MIN.	REF.	
0-80 NF-3B	.111	.107	.046	.121	.075	
1-64 NC-3B	.127	.123	.056	.140	.090	
1-72 NF-3B	.127	.123	.056	.140	.090	
2-56 NC-3B	.158	.153	.067	.176	.105	
2-64 NF-3B	.158	.153	.067	.176	.105	
3-48 NC-3B	.190	.183	.071	.210	.120	
3-56 NF-3B	.190	.183	.071	.210	.120	
4-40 NC-3B	.190	.183	.071	.210	.120	
4-48 NF-3B	.190	.183	.071	.210	.120	

Standard microsize FLEXLOC locknuts are available in brass (plain or cadmium plated) and aluminum (plain or chemically treated) for temperatures up to 250°F; in alloy steel (plain or cadmium plated) and 18-8 stainless steel (silver plated) for temperatures up to 550°F.

STANDARD PRESSED STEEL CO.







Microsize FLEXLOC locknuts save space and reduce weight in electronic equipment, instruments, servomechanisms, and other small assemblies in which weight and bulk are

important design considerations. Microsize FLEXLOC locknuts are smaller and lighter than regular FLEXLOCs of the same nominal diameter. They permit smaller mating joints or flanges—with no loss in holding power or convenience of assembly.

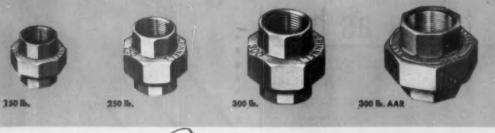
Like regular FLEXLOCS, microsize FLEXLOC locknuts are of one-piece, all-metal construction. No inserts to pop out or deteriorate; nothing to put together, come apart or get lost. FLEXLOCS lock and stay locked wherever wrenching stops. You can use them as locknuts or stop nuts. Vibration will not loosen them and they can be used many times over.

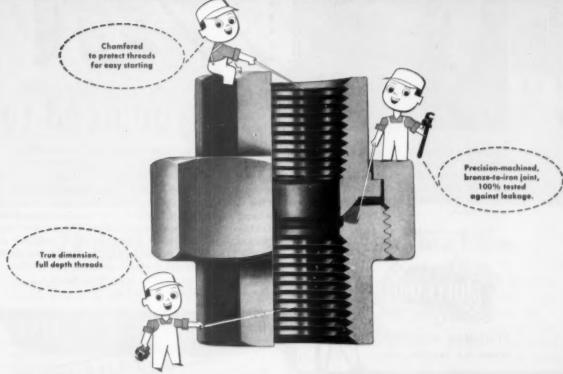
For more information on microsize FlexLoc locknuts (or microsize FlexLoc self-locking clinch nuts), see your local FlexLoc distributor or write Standard Pressed Steel Co., Jenkintown 31, Pa.

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Save time on the job . . . avoid customer gripes after the job, with

#### GRINNELL bronze-to-iron UNIONS





In the Grinnell Union, there's strength...rugged, built-in strength! A superior grade of malleable iron is used in Grinnell bronze-to-iron unions—followed by careful manufacture and frequent quality checks. The end result is the high quality Grinnell Union which must pass the final air pressure inspection test under liquid before it is accepted. No wonder Grinnell bronze-to-iron unions are a standard of comparison for the industry.

#### Quality Grinnell bronze-to-iron unions feature:

- Precision-machined, bronze-to-iron joints for a positive, leak-proof connection
- 100% tested with air under liquid
- · Bronze ring inserts of improved design
- · True dimension, full depth threads
- · Chamfered to protect threads for easy starting

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WHENEVER PIPING IS INVOLVED

Coast-to-Coast Network of Branch Warehouses and Distributors



Grinnell-Company, Inc., Providence, Rhode Island

Manufacturer of: pipe fittings ° welding fittings ° forged steel flanges ° steel nipples ° engineered pipe hangers and supports Thermolier unit heaters ° Grinnell-Saunders diaphragm valves ° prefabricated piping ° Grinnell automatic fire protection systems

For More Information Circle No. 159 on Inquiry Card-Page 17

are YOU **SCRUBBING** 

times as hard



as you need to?

The Hillyard Maintaineer has had years of training and experience in every conceivable type of floor problem. He will gladly put this experience at your disposal, help train your staff. There's no charge, no obligation.

He's "On Your Staff. Not Your Payroll.'



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#### LET THE MAINTAINEER HELP YOU!!

HILLYARD, St. Joseph, Mo.

Institution Address

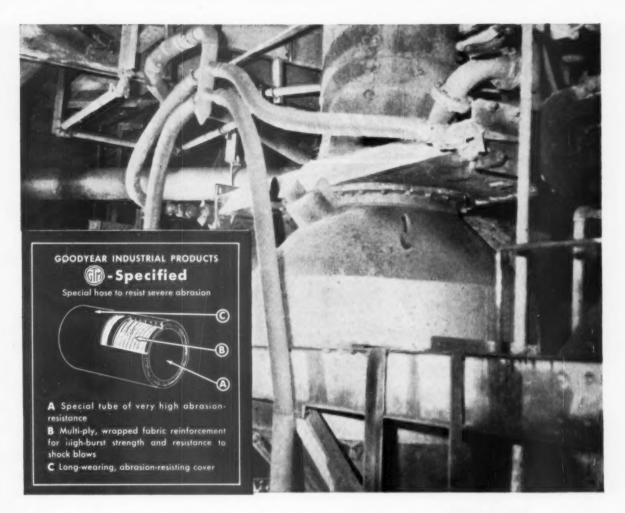
Yes, I'll take you up! Without charge or obligation, have the Hillyard Maintaineer® show me how to take advantage of new streamlined floor treatment procedures.

Have you studied your floor maintenance costs lately? Have you analyzed your cleaning methods to determine whether you are using too many operations-needless rinsing, for example-or are wasting time in prolonged scrubbing when the right cleaner would get the dirt loose in a fraction of the time? Remember, 95c of every floor maintenance dollar goes for labor! Call in your nearby Hillyard Maintaineer® for consultation. He will carefully study your floor problems and recommend (1) modern, streamlined work methods and short cuts, and (2) the tools and materials to enable you to take advantage of the short cuts, to keep your floors in better condition than ever before!

### CASE HISTORY-SCR

Super Shine-All, Hillyard's Neutral Chemical Cleaner, does the hard part of your work. Gets under and loosens the dirt for easy removal -- yet is nonreacting and safe for any type floor, including asphalt tile. Leaves no residue; requires no rinsing. Cuts out 2/3 of the labor and labor time -takes the rubbing out of scrubbing! U/L approved slip-resistant.

For More Information Circle No. 160 on Inquiry Card-Page 17



### 71 days for pipe-over 4 years for hose

Carrying off highly abrasive sand- and coal-dust slurry was plain murder on the heaviest steel pipe used at this Pennsylvania coal-cleaning plant. None lasted more than 71 days. Then there'd be another shutdown—and another expensive reinstallation.

But that was before the G.T.M.—Goodyear Technical Man—recommended a special hose designed

for super-resistance to abrasion. At last check, this hose had been in service 1500 days-more than 4 years. And it was still going strong.

Looking for an equally moneysaving answer to your industrial rubber problem? Check with the G.T.M. You can reach him through your Goodyear Distributor—or by writing Goodyear, Industrial Products Division, Akron 16, Ohio.



THE GREATEST NAME IN RUBBER

IT'S SMART TO DO BUSINESS with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."



news for all users of steel wire and wire products! From ACCO's Page Steel and Wire Division has come a great new wire—ACCO ALUMINIZED which is the successful culmination of years of research and development of a wire providing the strength and other desirable properties of steel plus the high corrosion resistance of aluminum.



By a new hot-dip process, covered by U.S. and foreign patents, a coating of commercially pure aluminum is bonded to the iron or steel wire. This coating provides long-lasting protection against corrosion in exditions.

#### **Outlasts Galvanized Wire**

Salt spray tests conducted in accordance with ASTM procedures show that, for equal thickness of coating, aluminized wire outlasts galvanized wire by more than 2 to 1.

Aluminum's unique properties establish its proved superiority, as a coating, over the zinc used in ordinary galvanizing. ACCO ALUMINIZED Wire offers a high degree of ductility and adherence of the aluminum coating.

With all the many advantages of ACCO ALUMINIZED Wire, its price is comparable and competitive with that of wire with galvanizing of equal thickness. Actually, it saves you money by making your wire dollar go farther. And-it is made and backed by an organization of broadest skill and experience in the

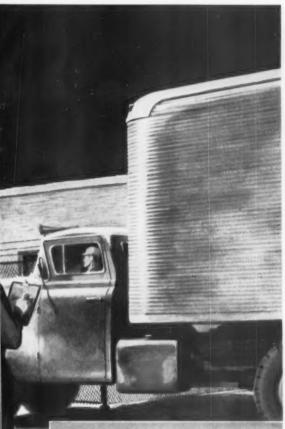
widely diversified uses.

#### Many Potential Uses

Our Page Steel and Wire Division is already producing the following items, among others-Strand for Guy Wire, Ground Wire, and Messenger Wire purposes; ACSR Core Wire; Telephone Wire; Chain Link Fence; Barbed Wire.

Expansion into other fields of uses is anticipated for those applications where the strength of steel complemented by a protective coating of aluminum is expedient, including high temperature applications. A cooperative development program is at your service.

Our new Folder DH537-A contains a wealth of interesting information on ACCO ALUMINIZED Wire-its unique properties, its many practical and economical uses, etc. Write for a copy today.



#### AGE ALUMINIZED CHAIN LINK FENCE

When you safeguard your property-industrial, institutional or residential-with the new Page ALUMINIZED Chain Link Fence you get better, longer-lasting protection at a substantial long-range saving! This remarkable new fence fabric has all the strength of steel plus the weathering resistance of its protective coating of aluminum. Yet, with all its obvious advantages, Page ALUMINIZED Chain Link Fence costs no more to buy and install than galvanized fence!

For Information on any ACCO product,

#### Why Acco products mean better values

Our research, designing and manufacturing facilities are devoted to making Acco products "intentionally better" in on-job performance. Year after year, reorders from our customers attest Acco's Better Values.

#### Below is a list of major Acco products and Acco Divisions

#### ABRASIVE CUTTING WHEELS

Rubber and Resinoid Bonded

ALLISON DIVISION

**BOLTS and NUTS - Lag Screws and Forgings** THE MARYLAND BOLT and NUT COMPANY

#### Electric Furnace Steel and Iron . Malleable Castings ACCO STEEL CASTING DIVISION ACCO MALLEABLE CASTING DIVISION

#### CHAIN

Weed Tire Chains . Acco Registered Sling Chains Welded and Weldless Chain and Attachments AMERICAN CHAIN DIVISION

Abrasive Cut-Off Machines . Nibbling Machines CAMPBELL MACHINE DIVISION

Tru-Lay Push-Pull Controls • Brake Controls Aircraft Cable . Tru-Stop Brakes for Trucks and Buses AUTOMOTIVE and AIRCRAFT DIVISION

GAGES . Pressure, Vacuum and Compound HELICOID GAGE DIVISION

HARDNESS TESTERS . "Rockwell" and TUKON

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Tru-Lay VHS Preformed Wire Rope • Tru-Loc Assemblies Acco Registered Wire Rope Slings

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THE BRISTOL COMPANY OF CANADA LIMITED Toronto, Ontario

IN ENGLAND: BRITISH WIRE PRODUCTS, LIMITED THE PARSONS CHAIN COMPANY, LIMITED

# American Chain & Cable Company, Inc.



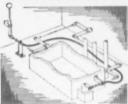
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For More Information Circle No. 162 on Inquiry Card-Page 17

address Market Development Department, American Chain & Cable Company, Inc.,

#### BELOW ARE ILLUSTRATED A FEW OF THE MANY **OTHER ACCO PRODUCTS**



#### TRU-LAY PUSH-PULLS

.. simplify design and improve construction by eliminating links and levers. Solid as a rod, yet flexible as wire



#### PENNSYLVANIA LAWN MOWERS

The PENNSYLVANIA linemous for performance since 1877-includes efficient power mowers and easy-running, smooth-cutting hand mowers.



#### CAMPBELL **ABRASIVE CUTTERS**

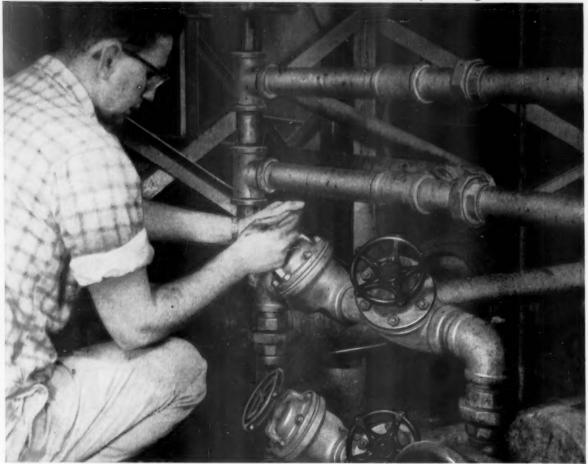
A complete line of highest quality machines for dry, wet or submerged abrasive cut-off. Machine capacities to 8" solid



ACCOLOY X-WELD 125 CHAIN

...identifies itself by its "kingsize" welding areas, which provide unequalled strength at the welds. Non-kinking; always hangs straight.

Another satisfied user of Crane Diaphragm valves



# Best by test for this heavy, sticky emulsion - Crane diaphragm valves

What valve is best and lasts longest in this service? A West Coast emulsified asphalt producer tried them all on the manifold above and here's what was found.

Conventional valves would become inoperative in a short time. The main trouble was binding of the stem in contact with the cold, heavy asphalt emulsion.

Ordinary diaphragm valves on the same service lasted only two months and had to be replaced. The diaphragms didn't stand up and the high torque required for closure was impractical for frequent operation.

Three years ago the plant started using

Crane No. 1610 Packless Diaphragm Valves. The neoprene diaphragm functions only to seal the bonnet. It is not subject to crushing and excessive wear as a seating member. The separate disc in combination with Crane Y-pattern body makes positive closure with minimum torque and turns. These valves are giving full satisfaction.

#### Literature on Request

Wide choice of body and diaphragm materials makes these exclusive Crane valves particularly useful to process industries. Ask your Crane Representative for Circular AD-1942, or write to address below.



### CRANE VALVES & FITTINGS

PIPE . PLUMBING . KITCHENS . HEATING . AIR CONDITIONING

Since 1855-Crane Co., General Offices: Chicago 5, Ill. Branches and Wholesalers Serving All Areas

For More Information Circle No. 163 on Inquiry Card-Page 17



by A. N. Wecksler

June 1, 1957

### COLD WAR

For the purchasing agent, our international commitments are extremely significant. Military mix in our industrial product has shifted over a wide range as the war fever has blown hot and cold—and the pressure of combined military and civilian demand has been responsible for the great expansion in basic materials and production facilities.

In the last 10 years, it has been tacitly understood that the U.S. was the top protagonist for the free world point of view—but that Britain and France were both close allies and important supporters. Now it appears we will have to shoulder even more of the leadership in this area as Britain cuts down on its defense spending.

### WEAPONS COSTS

No. 1 question is how big is the burden to be.... how fast do we have to build up?

For the last 5 years, we have spent an average of roughly \$40 billion per year for national security—and the current figure is well over this level.

The sharp increase in recent military spending in this country is due to a break-through to a new weapon era. As the result of intensive research, we have developed major new weapons which are extremely costly to produce.

But now, another cycle of disarmament maneuvers has begun. There is the same talk that persisted during the Geneva atomic conferences.

But with it all it is apparent that just as the U.S. is making the advanced hardware for a truly modern military, so are the Soviets.

#### UNCERTAINTY REFLECTS ON PURCHASING

Where does all this leave us in terms of materials—stockpiles—inventory levels?

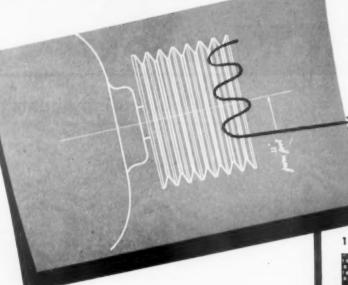
It is quite clear that for the last 6 months, there has been substantial liquidation of industrial inventories. The inventory cutback has been orderly—but it has had its effect in lessening demand for primary materials.

lessening demand for primary materials.

Capacity to produce non-ferrous metals has pulled ahead of demand. This same situation might be true of steel were it not for the carryover effect of last year's steel strike which has already lost much of its steam.

Cut sheave width and weight...

get same horsepower with fewer belts



Where space is limited and weight a factor, design your drive with this important fact in mind:

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

That's because a Gates Super Vulco Rope has 40% more horsepower capacity — delivers more horsepower per dollar invested than any standard V-belt drive. Sheaves with fewer grooves cost less... weigh less... take less room. Drive design is invariably improved.

A wealth of drive data is quickly available to you. Simply call your nearby Gates distributor for a Gates V-belt specialist. Stocks carried in industrial centers around the world.

The Gates Rubber Company Denver, Colorado



Specialized Research

GATES Distributors

Yellow Pages

5 Gates Super Vulco Ropes do the work of 7 standard V-belts

#### No other V-Belt has ALL these advantages

1. Tough, resilient Tensile Cords



Super strong resilient tensile cords provide 40% greater horsepower capacity . . . easily absorb heavy shock loads . . reduce number of belts required . . . save weight and space.

2. Concave Sidewalls (U.S. Pat. 1813698)



Concave sides (Fig. 1) increase belt life. As belt bends, concave sidewalls become straight, making uniform contact with sheave groove (Fig. 1-A). Uniform contact means less wear on sides of belt... far longer belt life.

3. Flex-Weave Cover (U.S. Pat. 2519590)



A Gates exclusive: provides greater flexibility with far less stress on fabric. Cover wears longer . . increases belt life . . more power available to driven machine.

4. High Electrical Conductivity

Built into Gates Super Vulco Ropes for safer drives (in explosive atmospheres).

5. Oil, Heat, Weather Resistant

Special rubber compounds make Super Vulco Ropes highly resistant to heat, oil, and prolonged exposure to weather.

TPA 248

# Gates Super VILLED Drives

For More Information Circle No. 164 on Inquiry Card-Page 17

Here is where the international tangle comes into the picture. Were we able to see a long period of peace ahead, we could look on our additional supplies of materials and our enlarged

But if we are to assume the threat of a hot war will continue indefinitely, then every scrap of material that is surplus to our current needs becomes an important part of our strategic stockpile.

#### INVENTORY LEVELS HEADING DOWN

Overall view is that  $\underline{inventory}$   $\underline{levels}$   $\underline{have}$   $\underline{been}$   $\underline{worked}$   $\underline{down}$   $\underline{and}$   $\underline{are}$   $\underline{more}$   $\underline{nearly}$   $\underline{normal}$ —that we do have some surplus capacity if we assume that all facilities should operate at top capacity.

Thinking now is that a day-in-and-day-out operation at 100% of capacity in primary materials is not a normal condition, and should not be considered so.

No real change in pace is anticipated. Any change to a more peaceful cycle is bound to be gradual.

An all-out preparation for war calls for an effort that

makes all our previous war memory obsolete. If we were to attempt to protect ourselves from overhead attack, the cost would far exceed the peak expenditure of any World War II year.

Air Force spokesmen say that to protect the installations necessary to retaliate against enemy attack would require an expenditure of \$20 billion—and if we wanted to protect essential industry, we would have to spend an additional \$50 billion. For civilian shelters, we would have to spend \$20-\$40 billion.

Just to protect the essential features of our society against modern attack from the air would take between \$135-\$165 billion.

Obviously there aren't enough materials to meet this kind of goal-and that, of course, is why we have taken the position that not affording all, we can't do any.

But we could be pushed into a program of this kind-just as we have been pushed by the cold war into the trans-sonic air race and into the hydrogen bomb and long-range missile race.

#### CAPACITY QUESTIONS CAN'T BE ANSWERED

With the future outlook so indefinite there is no one who can say how much we need in the way of different materials. During World War II, it was argued that the capacity to produce steel was already too large. Since then capacity has been increased tremendously and yet supply of items such as structurals is still tight.

This is why purchasing agents have a closer tie to world developments than any other members of the management team. The impact of a new turn in events hits first at the materials level-in supply.

### GOVERNMENT SPENDING

Government spending is becoming an increasingly important KEY ECONOMIC SUPPORT prop behind our high level of business activity. For example, the First National City Bank of New York in its monthly business analysis letter points out that 2 years ago consumer spending and home buying were the main forces supporting the economy. In 1956, the tremendous increase in business investment was the vital element that kept business moving at a boom pace.

Now, however, government spending-both federal and state -has become the dominant influence. In comparing first quarter '57 with first quarter '56, business outlays for plant and equipment have shown the smallest quarterly gain in 2 years. Government spending, however, has registered the largest increase in the last 5 years.



# Extra stamina built into BAKER gas trucks makes them ideal for metalworking plants

One look at any of the Baker "FG" line of gas-powered fork trucks will show you why it is recognized as the most rugged in its class. But there are many things you don't see: the heavy-duty engine, designed expressly for industrial truck service; the sturdy Timken-power axle—integrated with the engine, transmission and clutch into a single unit, engineered for trouble-free service and long life; the Baker wide-angle steering axle—mounted longitudinally in jumbo rubber blocks to provide stability and absorb road shocks; the all-welded box-type frame with securely bolted counterweight; the channel-frame uprights with bronze inserts properly spaced to minimize sliding wear and add security in extended position.

These are but a few of the built-in features that mean more time on the job and more efficient performance in metalworking plants — where the work is heavy and the going rough.

Baker Gas Trucks are available in 2,000 to 7,000 pound capacities. For specific information, contact your nearest Baker sales office or write us direct.



Baker

THE BAKER-RAULANG COMPANY
1253 WEST 8016 STREET . CLEVELAND 2, OHIO

industrial trucks

A Subsidiary of Otis Elevator Company

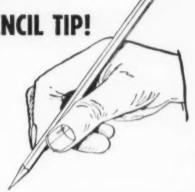
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# catalog files

#### information for your

#### ABRASIVE SHOT, GRIT

A 3-color illustrated catalog covers SAE specifications on all types of abrasive shot and grit. Also presented are advantages of shot peening and impact cleaning and proper abrasive mixtures.

Cleveland Metal Abrasive Co.

Circle No. 1 on Inquiry Card-Page 17

#### AIR BRAKE

The advantages of straight air and air-over-hydraulic brake systems for trucks, tractors, trailers and buses are described in catalog KU-20-lb. Diagrams of installations are given.

Wagner Electric Corp.

Circle No. 2 on Inquiry Card-Page 17

#### ALLOY STEEL

Bulletin NO. 15-5 supplies engineering data and shows how up to 200% greater output of machined parts is possible with 40 carbon leaded steel compared with similar analysis without lead added.

Joseph T. Ryerson & Son, Inc.

Circle No. 3 on Inquiry Card-Page 17

#### BATTERY, TRUCK

An industrial truck battery designed for sustained power requirements is described in 8-page bulletin, No. GB1567B. It details battery construction and lists engineering specifications for 3 capacities.

Gould-National Batteries, Inc.

Circle No. 4 on Inquiry Card-Page 17

#### BINS, STORAGE

Bulletin BB-956 covers steel bulk bins. It contains specific charts for planning storage needs and diagrams which clearly demonstrate the "Float Wedge Construction" principle for easy adjustment.

Sturdi-Bilt Engineering Co.

Circle No. 5 on Inquiry Card-Page 17

#### **BUS CONDUCTORS**

A 280-page handbook presents facts and figures vital to anyone responsible for purchasing of bus installations. It contains 69 graphs and tables on aluminum buses.

Aluminum Co. of America

Circle No. 6 on Inquiry Card-Page 17

#### COLLETS

Designed for quick reference, a two-color,  $8\frac{1}{2}$ " x 11" catalog, #22, contains a wealth of information for the solution of collet and feeder problems. There are cross-section views of each model.

Sutten Tool Co.

Circle No. 7 on Inquiry Card-Page 17

#### COMPARATORS

Two types of comparators that combine mechanical gaging with electrical magnification are described in a 2-color, 20-page brochure. One gages outside and the other inside dimensions of parts.

Pratt & Whitney Co., Inc.

Circle No. 8 on Inquiry Card-Page 17

#### CONVEYOR, POWER CHAINS, ETC.

A complete line of malleable chains is covered in a 2-color catalog. They are for conveyor, elevator and power transmission applications. Method of installing chains is shown.

Moline Malleable Iren Co.

Circle No. 9 on Inquiry Card-Page 17

#### CONTAINERS (CARGO)

How to cut materials handling costs with aluminum-dipped finished steel wire mesh containers forms text of 34-page report. They can be used in shipping, warehousing or in production.

Pittsburgh Steel Products

Circle No. 10 on Inquiry Card-Page 17

# catalog

#### DIE CASTINGS

An 8-page colored brochure describes design characteristics and advantages of die-casting. There are sections on die making and permanent mold castings. Quality control is reviewed.

Harvill Corp.

Circle No. 11 on Inquiry Card-Page 17

#### DRILLS

A catalog has been compiled to save time in proper drill selection. Also covered are end mills, reamers, tool bits and related tools. Tables give data on high speed and carbide tools.

Besly-Welles Corp.

Circle No. 12 on Inquiry Card-Page 17

#### FASTENERS (STAINLESS)

Catalog No. 56A lists over 7000 stainless steel fastening items. A number of pages give hints on short cuts in ordering and on replacing special type fasteners with standard items.

Star Stainless Screw Co.

Circle No. 13 on Inquiry Card-Page 17

#### FITTINGS (STAINLESS PIPE)

A 24-page illustrated catalog deals with a line of corrosion resistant fittings permitting use of the more economical Schedules 5 and 10 piping where corrosion is to be prevented.

Horace T. Potts Co.

Circle No. 14 on Inquiry Card-Page 17

#### FLUORESCENT LIGHTING

The advantages of fluorescent lighting for industrial usage are explained in a 3-color booklet. Copious pictures, sketches and charts supplement text. Lamp types and accessories are covered.

Sylvania Electric Products Inc.

Circle No. 15 on Inquiry Card-Page 17

#### GASKETS, PACKINGS

Full information on industrial gaskets, mechanical packings, packing hooks and steel rule dies is contained in a 40-page handybook. Charts give gasket recommendations and material costs.

Rhopac, Inc.

Circle No. 16 on Inquiry Card-Page 17

#### GEAR DRIVES

Illustrated brochure, No. 145, provides useful information on a complete line of speed reducers, worm gear sets and special units. Specialized reducers for custom-design needs are covered.

The Cleveland Worm & Gear Co.

Circle No. 17 on Inquiry Card-Page 17

#### GEARING

Booklet B-7012 outlines the company's design facilities and manufacturing capacity to produce quality, custom-made industrial gearing. Special machinery and heat treating equipment are shown.

Westinghouse Electric Corp.

Circle No. 18 on Inquiry Card-Page 17

#### HOSE, HOSE ENDS

Detailed information on bulk industrial hose, permanently attached and swaged hose assemblies and ends, and hose end swivel adapters is contained in 40-page catalog. Charts help selection.

The Weatherhead Co.

Circle No. 19 on Inquiry Card-Page 17

#### LIFT TRUCKS

Basic characteristics of a line of manually propelled, battery-operated hydraulic lift truck are given in a 24-page, 2-color catalog. It shows units for hydraulic handling in any department.

Big Joe Mfg. Co.

Circle No. 20 on Inquiry Card-Page 17

#### LUBRICATION FITTINGS

Listed in a catalog of lubrication fittings, Form 38-23 (32 pp, 2 colors), is every type from the orginal "Pin Type" to the newest "Red Ball" hydraulic fitting, as well as special purpose units.

Stewart-Warner Corp.

Circle No. 21 on Inquiry Card-Page 17

#### MAGNESIUM, TITANIUM

A 44-page booklet of design data on magnesium and titanium covers their general physical and mechanical properties as well as their mechanical properties at elevated temperatures.

Brooks & Perkins, Inc.

Circle No. 22 on Inquiry Card-Page 17

#### MAGNETS, PERMANENT

A new 12-page catalog covers both cast and sintered permanent magnets. Included is information on magnetic and mechanical properties, tolerances, sales and service information, illustrations and engineering information.

Metallurgical Products Dept. General Electric Co.

Circle No. 23 on Inquiry Card-Page 17

Circle Card Opposite Page 17
to Obtain These Catalogs
Additional Catalogs on Page 20

For More Information Circle No. 166 on Inquiry Card—Page 17→

# DU PONT ELASTOMERS

neoprene - Hypalon' in industry



# NEOPRENE fire hose is good as new after three years in refinery

Exposed to 66° Be. sulfuric acid

—HYPALON diaphragm
gives 2 years' perfect service
on acid pump

In November, 1954, a HYPALON diaphragm was installed in a proportioning pump in the plant of Fields Point Mfg. Corp. at Providence, R. I. Since that time it has been on continuous service handling 66° Be. sulfuric acid. Before the use of HYPALON, diaphragms were oxidized and embrittled by the strong acid and had to be replaced every few months.



The diaphragm flexes about 26 times a minute through a ¼-in. stroke and is fabric-reinforced for 125 psi. service. The sulfuric goes from the pump to a stoneware tower where it dries chlorine gas from electrolytic cells.

HYPALON is a new Du Pont synthetic rubber which is noteworthy for its resistance to oxidation — by chemicals, heat, ozone, sunlight and weather. It is being used in the chemical industry for tank linings, acid hose, colored protective coatings, gaskets, valve inserts and pump parts. For more information about HYPALON, just mail the coupon.



New neoprene hose with cover of Dacron far outlasts conventional cotton-reinforced rubber hose. Latter was deteriorated by oils and acids.

Dragged over rough floors, through oil and chemicals ...still meets safety specifications

"I have never picked up a hose that will equal it," is the endorsement of Karl Pepper, a 25-year fire-fighting veteran and Safety Director at D-X Sunray Oil Company's refinery at Duncan, Oklahoma. Heart of this hose is neoprene, its hide is Dacron\*: neoprene tube for flexibility and resistance to oil and chemicals; cover of Dacron for strength and abrasion resistance. In areas where excessive oil contact is encountered the cover is impregnated with neoprene.

This rugged new industrial fire hose weighs only 30 lbs. per 50-ft. length compared to 58 lbs. for the same length of conventional rubber fire hose. It will withstand 500 psi, pressure and 300°F, temperature. Unlike cotton-covered

hose, it is unaffected by mildew, and is so flexible it can be tied in a knot without harming it. The hose can be stored all year, as at the D-X Sunray Refinery, in outdoor racks without deterioration.

D-X Sunray switched from cottonreinforced rubber fire hose to overcome the deterioration experienced from acids and oil. Nearly 2500 ft. of neoprene hose with cover of *Dacron* are now in service at the refinery and no maintenance has been required since the first length was purchased in July, 1954.

Fire hose is only one application where versatile neoprene may help cut operating and maintenance costs. Its service record is outstanding where exposure to oils and chemicals, sunlight and weather, or cutting and abrasion would ruin ordinary rubber. Tank linings, gaskets and belting are but a few uses. Mail coupon for full information.

\* Du Pont's trademark for its polyest



HYPALON is a registered trademark of E. I. du Pont de Nemours & Co. (Inc.)

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



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1 am particularly interested in

Firm\_

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#### NOTCHING, PUNCHING TOOLS

Specifications, applications and prices of a full line of punching and notching units are supplied in a 72-page illustrated manual. It outlines a simplified "Peg Board" setup system.

Toolset, Inc.

Circle No. 24 on Inquiry Card-Page 17

#### **PLASTICS**

Specifications and prices for nearly a score of different plastics, available in sheet, rod or tube form are given in a 64-page catalog. A quick reference index locates plastic needed.

Cadillac Plastic & Chemical Co.

Circle No. 25 on Inquiry Card-Page 17

#### RELAYS (ELECTRONIC)

Engineering bulletin, No. 1050, provides full information on application, construction and engineering specifications of open and hermetically sealed electronic relays.

Essex Wire Corp.

Circle No. 26 on Inquiry Card—Page 17

#### RESISTORS

Bulletin, GEA-6592, covers in 36 illustrated pages a full line of vitreous enameled stock resistors, ranging from 5 to 200 watts, both fixed and slidewire; also 1200 watt units.

General Electric

Circle No. 27 on Inquiry Card-Page 17

#### SMALL PARTS

Standard lugs, clips, terminals and other standard small parts, available from stock, are described and illustrated in catalog No. 21. It describes a cost-savings, hot-tinning process.

Zierick Mfg. Corp.

Circle No. 28 on Inquiry Card-Page 17

#### SMALL PARTS (ZINC ALLOY, THERMOPLASTIC)

Some 67 different types of zinc alloy die cast and thermoplastic molded products, available from stock, are listed in a 9-page bulletin. It also details facilities for making custom parts.

Gries Reproducer Corp.

Circle No. 29 on Inquiry Card-Page 17

#### SNAGGING GRINDING WHEEL

A 4-page, 2-color brochure deals with a wheel employing ingredients never before used in an abrasive snagging unit. This results in faster cutting and longer life for steel mill jobs.

Peninsular Grinding Wheels

Circle No. 30 on Inquiry Card-Page 17

#### SWITCHES, SOCKETS, LAMP GUARDS

Specifications for switches from 1 to 10 amps are given in a "handybook" style catalog (32 pp) Also included are descriptions of many styles of portable lamp guards and industrial sockets.

McGill Mfg. Co., Inc.

Circle No. 31 on Inquiry Card-Page 17

#### TRANSFORMERS

The 50-page booklet, B-4716-B, discusses transformers and their maintenance. It deals with inspection procedures, transformer classifications, methods of drying out and connections.

Westinghouse Electric Corp.

Circle No. 32 on Inquiry Card-Page 17

#### VALVES

An attractive catalog gives details of a line of flexible, pinch-type, and hose bodied valves in both standard and new "Superseal," metalenclosed designs.

Ferris Flexible Valve Corp.

Circle No. 33 on Inquiry Card-Page 17

#### VALVES

Polyvinyl chloride valves and fittings, handling about 315 different fluids, that attack other materials, are treated in an illustrated bulletin. Four tables detail physical properties.

Walworth Co.

Circle No. 34 on Inquiry Card-Page 17

#### V-BELTS

Tips on how to prolong the life of V-belts and increase drive efficiency are contained in 12-page bulletin, No. 20X6234C. Eight common causes of V-belt destruction are portrayed.

Allis-Chalmers Mfg. Co.

Circle No. 35 on Inquiry Card-Page 17

#### WHEELS (RUBBER TIRED)

Bulletin D (2-colored) explains why a line of free wheeling demountable rubber tired wheels roll up to 25% easier on floor trucks, trailers and casters. Dimensions are supplied on all types.

Nutting Truck & Caster Co.

Circle No. 36 on Inquiry Card-Page 17

#### WIRE (RESISTANCE)

Complete with charts and tables, Bulletin No. 157 gives full data on electrical and physical properties of resistance wire made from different alloys. Wire is made as small as .00045" diam.

Williams & Saylor, Inc.

Circle No. 37 on Inquiry Card-Page 17

# self-aligning... CAN'T BIND

# Husky bearings in husky housings adjust immediately in any direction

When high-impact loads deal out punishment, shaft deflection may spell a quick finish for ordinary bearings. But this rugged Link-Belt bearing is *self*-aligning . . . won't "pinch" or bind when misaligned.

Complete protection is provided by effective seals which block entrance of dirt, escape of lubricant. Durable housing machined as two perfectly matched parts provides easy installation without shims or alignment rings.

Get full data on Link-Belt's complete bearing line from Book 2550. Ask any of 40 Link-Belt offices or one of our authorized stock-carrying distributors.



LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York ?; Canada, Scarboro (Toronto 13); Australia, Martickville (Sydney), N.S.W.; South Africa, Springs. Representatives Throughout the World.

For More Information Circle No. 167 on Inquiry Card-Page 17

# suppliers

## in the news

Neal J. Kemp, Jr. has been made midwestern regional sales manager for Yale Materials Handling Division, The Yale & Towne Manufacturing Co., Philadelphia, Pa. From headquarters in Chicago, Mr. Kemp will supervise industrial lift truck and hoist sales throughout the midwest terirtory.

Howard J. Mullin has been named assistant vice presidentsales-distribution of United States Steel Corp., New York, to succeed M. M. Chapman. J. M. Curto will replace Mr. Mullin as



Howard J. Mullin

manager of sales of the New York district sales office of the corporation. Mr. Mullin started his career with U. S. Steel as a sales student in 1927 and worked in several districts in the sales capacity until he became manager of sales of the New York district sales office in 1955. On March 1 of this year he completed five months service



J. M. Curto

as executive director of "The President's Citizens Advisers on the Mutual Security Program." Mr. Curto began his service in 1936 as a sales trainee. Following this he was assigned to the Philadelphia district sales office as a clerk and was a salesman in that office from 1939 to 1943.

The appointment of John R. Montrose as sales representative has been announced by Mueller Brass Co., Port Huron, Mich. He has been assigned to the San Francisco, Calif., office where he will assist Bruce Smith, district sales manager, in the sale of

brass, bronze and aluminum fabricated and mill products to manufacturers, as well as standard Streamline products for the plumbing, heating, refrigeration and air conditioning industries and to the wholesale trade.

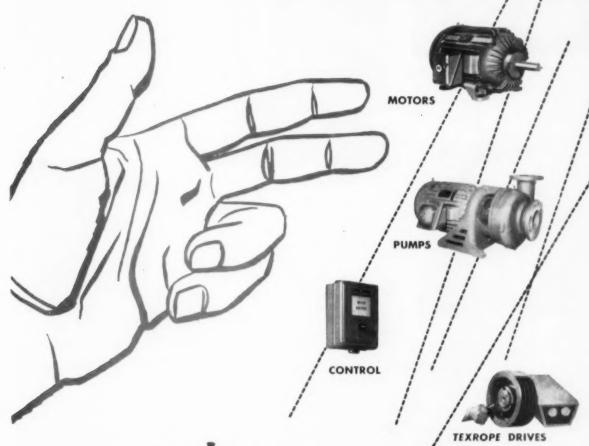
Martin P. Kerins has been promoted to sales manager of industrial national accounts for the Stauffer Chemical Company, New York. He will maintain contact with all national accounts having headquarters in the east-



Martin P. Kerins

ern United States. For these accounts, he will coordinate the sales efforts of the eastern, central, western and southwestern divisions of the company. Before his recent appointment, Mr. Kerins was supervisor of products managers.

when you buy, consider...



# the 101 cost of equipment

The cost of any equipment you buy extends over its entire lifetime. It does not end with purchase price. Cost goes up with every shutdown, every maintenance stoppage. Cost stays down when you buy quality. And quality means Allis-Chalmers.

Something extra goes into the full line of Allis-Chalmers control, motors, pumps and *Texrope* drive equipment. We call it "quality-craftsmanship." It means long-run dependability; it means the real cost of A-C products stays low.

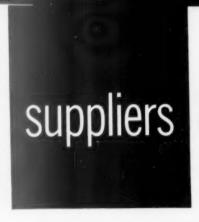
Find out more from your Allis-Chalmers office or distributor, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

Texrope is an Allis-Chalmers trademark

**ALLIS-CHALMERS** 



For More Information Circle No. 168 on Inquiry Card-Page 17



Automotive Rubber Company, Inc., Detroit, has announced the addition of Fred Miller to the



Fred Miller

sales and engineering staff. Mr. Miller will represent the company in New York and the surrounding area and will head the New York office.

Michigan Alkali Division of Wyandotte Chemicals Corp., Wyandotte, Mich., has established two new sales offices in the south: the southeastern district office at 46 Fifth Street, N.E., Atlanta, Ga., and the southwestern district office at 304 National Bank Building, Baton Rouge, La. Roger Moister has been named manager of the southeastern district office. Scott Starkey has been placed in charge of the southwestern district office. David B. Bolander has been appointed resident salesman for the southwestern district and will reside and operate out of Houston, Texas.

Additional "Suppliers in the News"
will be found following the
Industrial Development section

Acheson Dispersed Pigments Co., Philadelphia, Pa., has announced the appointment of Charles R. Schroth as sales manager. He has been associated with



Charles R. Schroth

H. N. Richards Co., Trenton, N. J., as a salesman of chemicals and carbon black, and later with Godfrey L. Cabot, Inc., Boston, Mass., in the same capacity. In 1955, Mr. Schroth was named assistant sales manager of special blacks for the same company.

Appointment of John C. Weidman as manager of the New York sales region has been announced by Sun Oil Co., Philadelphia, Pa. He succeeds Kenody R. Ware, manager of the New York region since its formation in 1935, who is on special assignment.

Philip H. McLaughlin, formerly head of the sales development department has been promoted to



Philip H. McLaughlin

manager of sales administration at the New York office of Stauffer Chemical Co.

Gerald L. Dennis has been named manager of field sales for the Naugatuck Chemical Division, Umited States Rubber Co., New York. Formerly Los Angeles district manager, Mr. Dennis in his new post, will supervise the transition of the division's commodity sales organization to a district sales office set up. He will then promote sales of all its products through this district headquarters at Naugatuck, Conn.

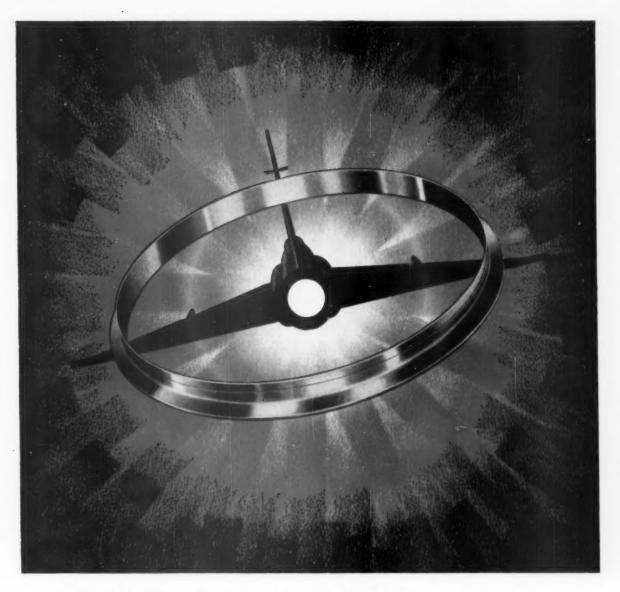
Eastern Stainless Steel Corp., Baltimore, Md., has announced the appointment of Richard C. Cunningham as director of sales.



Richard C. Cunningham

Prior to his new appointment, Mr. Cunningham had been manager of stainless for Industrial Stainless Steels, Inc., Cambridge, Mass., a wholly-owned warehousing and sales subsidiary of the company. He succeeds Edward A. Haggenmuller who has retired.

Appointment of Jack W. Davis as regional sales manager has been announced by Johns-Manville Pipe Division, New York. Mr. Davis will be in charge of the newly established Rocky Mountain region which will encompass the states of Colorado, Idaho, Montana, New Mexico and Wyoming. Prior to joining the corporation in 1944 as district engineer for the Denver district, Mr. Davis was associated with the United States Public Health Service and the Colorado State Board of Health. In 1947 he was appointed Johns-Manville manager for Transite Pipe at Denver.



#### Cool Performance In A Hot Engine



Major U. S. manufacturers of jet aircraft engines have learned to depend on American Welding rings and circular components of stainless steel, titanium or other special alloys to solve many of the problems created by the requirements of today's supersonic performance.

American Welding is equipped to form, weld, fabricate and machine rings and weldments from 6" to 96" in diameter.

Why not contact American Welding's Industrial Products Division to talk about rings and components where top performance is required.

THE AMERICAN WELDING & MANUFACTURING CO.

460 Dietz Road Warren, Ohio

#### AMERICAN WELDING

The World's Leading Manufacturer of Welded Rings



Being interviewed is Curtice C. White, Senior Development Engineer.

#### "These channels actually cool the battery"

At the Exide Laboratories—Reporter: First, Mr. White, tell me what makes a battery hot.

White: Heavy loads—they often raise battery temperature as much as 20 degrees.

Reporter: How do the channels cool it?

White: The heated electrolyte rises to the top through the channels. Plates are cooled by electrolyte coming up from the bottom.

Reporter: Don't all batteries have channels?

Whites Unfortunately, no. It is the tubular construction of the Exide-Ironclad positive plate that leaves these channels on both sides.

**Reporter:** What does this feature mean in battery performance?

White: Longer battery life, for one thing. The battery stays cooler. Has less incidence of hot spots. Plates operate at a more uniform temperature.

Reporter: Obviously this is an important feature of Exide-Ironclad.

White: Yes it is, but it's just one of many engineering details that contribute to its high capacity and long life.

Note to battery users: Whenever you order heavy duty batteries or the equipment that requires them, be sure to specify Exide-fronclad. For detailed bulletin, write Exide Industrial Division, The Electric Storage Battery Co., Philadelphia 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY



For More Information Circle No. 171 on Inquiry Card-Page 17-

For More Information Circle No. 170 on Inquiry Card-Page 17

PURCHASING

# Meeting the big change in industry with the big change in bearings—TIMKEN and the Moto-Mated Way



# New TIMKEN® Moto-Mated bearings cost up to 15% less

AMERICA'S economy is mushrooming. We're developing new markets, new products, new machines. Machines that do a better job faster. Bigger drilling rigs. More powerful pumps. Tougher tractors. Faster presses. Machines that demand more of component parts.

Meeting this big change in industry is the big change in bearings—Timken® Moto-Mated bearings. Bearings totally new in design, manufacture and supply... mated to the new needs of today's new industries.

New Timken Moto-Mated bear-

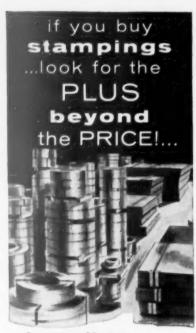
ings are smaller to allow more compact design. Lighter to cut weight. More uniformly precise. Yet they cost less and are available in almost unlimited supply, because the Moto-Mated Way uses revolutionary new manufacturing methods to produce better bearings cheaper. Bearings that pack maximum capacity in minimum space.

Timken Moto-Mated bearings are saving industry up to 15% in bearing costs for millions of wheels. You can obtain similar savings when you redesign present applications for new Timken Moto-Mated bearings. They are available

in bore sizes of 34", 252", 114" and 138".

Quality, service, public acceptance and the new low price make Timken Moto-Mated bearings your best value. There's no reason to substitute. Our representatives will be glad to show you how you can save with Timken Moto-Mated bearings. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".

TAPERED ROLLER BEARINGS



#### immediate availability of material for instance

On hand always in our plant is an extensive inventory of a wide variety of materials\*. available normally only on special order from mills.

No need for our customers to wait for such materials!

For your next hurry-up stampings . . . look for this plus beyond the price . . . immediate availability of material . . . and let us quote before you buy!

A brochure is yours for the asking!



#### DETROIT STAMPING COMPANY

Established 1915

408 Midland Ave., Detroit 3, Mich.

"America's Leading Job Stamping Manufacturer"

\*Our stock of materials includes-closetolerance spring steel, both tempered and annealed; copper and copper-base alloys, various analysis of carbon steels, and imported Swedish Flapper-Valve steel.



For More Information Circle No. 172 on Inquiry Card-Page 17

f.O.D. filosofy of buying

T'S AN OLD DEVICE to sidestep purchasing department authority and mandatory bidding procedure, but it still flourishes. You simply take one big order and split it up into a lot of little orders, each one being under the prescribed minimum amount that would bring it under purchasing jurisdiction. The City of Tulsa has an ordinance that requires any item more than \$500 in value to be procured on competitive bids through the purchasing department. Recently the Tulsa Tribune went over the purchasing files. Here are a few of the unbid transactions they found in a representative two-week period:

June 18. Street Department purchased four tons of crushed stone from one vendor. Total cost was \$727, but two separate orders were issued, each less than \$500.

June 26. Fire Department issued four separate, identical orders on the same day to the same vendor. Each order called for three oxygen breathing apparatus at \$165 apiece. Total cost was \$1,980, but each order was just

June 26. Water Department purchased a distributor tester set for \$486.16. On the same day they issued a separate order (\$55.62) for the cabinet that houses the machine and the adapter that goes with it. A single order for the unit would have amounted to \$541.78.

June 26. Finance and Revenue Department bought two adding machines from one vendor, at \$354 and \$261, on separate orders. Three days later, a third machine was purchased on a third order.

June 26. City Auditor bought four identical filing cases from one vendor. Total price for the equipment was \$545.70, but two orders were issued, each for only \$272.85, to make the transaction legal.

June 27. Park Department bought \$2003.50 worth of recreation equipment from one vendor, on seven separate purchase orders, without bids. The biggest single order amounted to \$474.60. The biggest single item (softballs) in itself exceeded the \$500 limit, but was broken up into three orders.

And so on and on. Practically every city department gets into the act with the same old routine. That includes the Auditor, who is supposed to keep an eye on such shenanigans. The public spirited Tribune, having collected the evidence, urges a tightening of the ordinance to put an end to "back door buying".

W E ARE told that one disgruntled junior buyer in a large department complained to the company president that the Director of Purchases seemed to do nothing but look out the window. "Good," said the president. "That's his job. The vice-president-in-charge-of-looking-out-ofwindows, if he's a good man, is a key executive in any organization. Most of us are too busy looking after today's business. He's the man we must depend on for next year's."

HE CLASSIC PROBLEM of salesmen's waiting time and restricted hours for interviewing has a new and growing counterpart in waiting time and restricted hours for receiving deliveries. We've heard about it from both buyers and shippers. It's already serious in some areas and promises to become worse, particularly where there is a large proportion of truck delivery and where the receiving platform doubles as a shipping dock. Along about 3:30, the company's own outgoing shipments take priority on both loading space and personnel. The trucker who may already have been waiting an hour or more for his turn to unload may have to take his load back to his own plant and try again the following day. The added costs are obvious. Purchasing agents are concerned for other reasons as well. It fouls up closely scheduled flow of materials, causes supplier relationships to deteriorate, weakens expediting efforts. "It has come to the point," says one buyer, "that we ask the vendor to alert us on critical deliveries, so that we can post a man from the purchasing staff in the receiving department, to make sure that the goods will be accepted when they come."

OS ANGELES State College makes history in purchasing education by offering the degree of Bachelor of Science in Purchasing Management. The program was set up as the result of a cooperative study made by the college and the Educational Committee of the Los Angeles P.A. Association. L. A. State is the second college to adopt such a course, the pioneer being the Illinois Institute of Technology. Impetus is given to the L. A. program through the establishment of fellowships by Southern California industries that learned to appreciate the importance of sound purchasing and well trained purchasing men. Northrop Aircraft, Inc., is the initial sponsor.



Our special business is specials . . . special fabricated wire cloth parts made to your specifications. We save you time, we save you overhead, we save you production worries. And, you get a better part at a lower cost.

We weave our own cloth . . . your guarantee of quality components. We are fully equipped to do all necessary cutting, shaping, fitting, welding, soldering, punching, binding, etc.

For more information on this "One-Stop" Wire Cloth Parts Service, send for our latest Parts Catalog.





351 VERONA AVENUE . NEWARK 4, NEW JERSEY

For More Information Circle No. 173 on Inquiry Card-Page 17



Out-of-town shipping information needed quickly?

#### Get it fastest by telephone

Want to know when goods are being shipped, how they're coming, when they'll arrive? Pick up the telephone. It's the quickest, easiest way to get the information you need.

On short notice you can deal with loading problems or change schedules. You can divert shipments in route to meet new conditions, trace delays that affect your business—all by telephone.

We'd like to show you a number of ways that planned use of the telephone can help purchasing operations in your particular business. Just call your Bell Telephone Business Office and a representative will visit you at your convenience.

BELL TELEPHONE SYSTEM
Call by Number, It's Twice as Fast,

#### LONG DISTANCE RATES ARE LOW

Daytime Station-to-Station Calls

For example: Philadelphia to	First Three Minutes	Each Added Minute
Washington, D.C.	60€	15€
<b>Buffalo to Cleveland</b>	75€	20∉
Chicago to Cincinnati	90∉	25∉
St. Louis to Omaha	\$110	30∉
San Francisco to Phoen	ix \$140	40∉

Add 10% Federal Excise Tax



New lithium base

#### GULFCROWN GREASE

... the one grease that does the work of many

It's a fact—you can use Gulfcrown practically anywhere! On plain or anti-friction bearings. In gear boxes. Outside or inside. You name it, chances are Gulfcrown will lubricate it—but good! Operating conditions can be hot, cold or wet . . . this tough, all-purpose grease does its job regardless.

You can see how one multi-purpose grease that does the work of many is a big money-

saver. It reduces inventory, cuts lubricating costs and prevents application errors. Check the saving yourself—test Gulfcrown. Ask your Gulf sales engineer or write for free literature.

#### **GULF OIL CORPORATION**

1822 Gulf Building Pittsburgh 30, Pa.



THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS



### **RONSON** produces the First Electric **Shaver with 2 Separate Cutting Heads**

Ronson calls their new "66" Shaver "the most revolutionary electric shaver ever designed"and offers strong evidence to support this claim. For one thing, it is the first electric shaver with an extra cutting head, called "Super Trim", which does every trimming job, from sideburns to mustache.

When any manufacturer is out to break precedent, and still sell his product at a competitive price, he needs every bit of designing and production skill he can find-anywhere.

Ronson found these in generous abundance at Mt. Vernon. Three of the vital parts of the "66"—the head frame and the plate covering the "Super Trim" blades (zinc castings), and the motor chassis (an aluminum casting)—were designed to obtain the special advantages of die casting: thin wall sections of great strength and rigidity, negligible machining, smooth finish, high speed production, low cost.

Says Ronson: "These parts are highly vital to our electric shaver. The cutting mechanism depends on the head frame for its accuracy of mounting and rigidity while cutting. The chassis on which the motor is built is of course the heart of the shaver's power system, and a very accurate casting is necessary for the job."

These advantages, important to any manufacturer, stem directly from the way we are organized here at Mt. Vernon. We have both the facilities and the complete die casting service it takes to produce parts like these, in any quantity, at minimum cost. We have 200,000 square feet of the most modern equipment for making dies and for die casting aluminum and zinc. And Mt. Vernon service comprises completely coordinated designing, die-making, casting, and machining, all under one roof.

It will pay you well to bring your production specifications to us. We may show you, as we did Ronson, the way to important cost reductions and improved products.



Mr. Grant Eller 6 East 194th St., Cleveland, Ohio Mr. Jerome J. Theobold Mr. Anker Anderson 9 East Genesee St., Skaneateles, N. Y. Cascade Road, Stamford, Connecticut

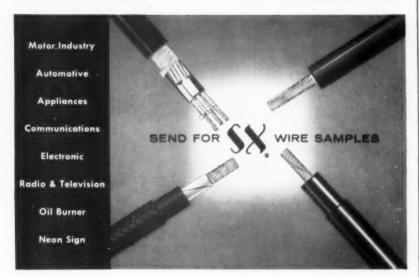
Mr. Arthur Diamond, Tools Incorporated 86 Bethlehem Pike, Philadelphia, Pa.

For More Information Circle No. 176 on Inquiry Card-Page 17

Mr. David H. King 75 Willow Street, Guilderland, N. Y.

Mr. William Sauers Mr. George E. Hahl
101 Briarcliff Road, Rochester, N. Y. 39 South Munn Ave., East Orange, N. J.

## WIRE and CABLE



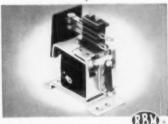
## ... laboratory-developed to meet the unique requirements of your specific application!

The Essex "Extra Test" approach to the development of quality wire products has gained the confidence of engineers in every industry where electrical wire products are a factor! The full line of lead, appliance, automotive and refrigeration wires . . . plus submersible pump cable and 200° C. Sil-X\* insulations are outstanding examples of the versatility of "Essex Engineering." Thorough engineering, from conductor to covering, has made available a wire of type and size with vital properties that assure you outstanding performance.

> Unusual wire or cable specifications need not trouble today's engineer. By investigating the complete line of SX Wires and Cables, most wiring requirements can be quickly met by one or more of the Essex "Standards"; thus hastening delivery, affecting far greater economies, and guaranteeing an Essex Engineered "Industry Proven" product.



other outstanding \*ESSEX ENGINEERED production proven products



#### GENERAL PURPOSE RELA

A.C. or D.C. General Purpose Multipole relays. For circuit switching of electrical inter-locking remote control devices. Features special cross-bar contacts for low-voltage, low current circuits or button type contacts for power switching circuits. Request Bulletin No. 1060.

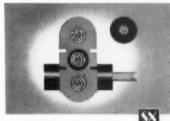
> R-B-M "Control" Division Logansport, Indiana



#### COILED CORDS

Coiled Cords automatically synchronize with moving components that are electrically powered. There are no looping, tangling cords in the way... because Coiled Cords extend and retract as needed. Complete line of cord sets and power supply cords. Write for new literature.

Cords Limited Division DeKalb, Illinois



#### REFRIGERATION WIRES

The complete line of "Essex Engineered" in ternal, lighting circuit, heater and lead wire . plus flexible conduit, power supply cords and thermostat cables, are approved by UL and CSA.

Wire and Cable Division Fort Wayne, Indiana



For More Information Circle No. 177 on Inquiry Card-Page 17

For More Information Circle No. 178 on Inquiry Card-Page 17-

JUNE, 1957



## UP...10 125 H.P.

## now, industry-proven motor design available in large sizes, giving more motor for modern production systems

Westinghouse anticipates modern motor requirements in the new line of large-size Life-Line<sup>®</sup> "A" Motors—with design and construction features for longer motor life, lower maintenance, and better system operation. You get more for your motor dollar. New models will be available in both drip-proof and totally-enclosed styles with frame sizes through 445.

> POWER-UP for tomorrow's production needs with the new large-size Life-Line "A" a-c motors. For complete information . . . call your Westinghouse sales engineer or write Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pennsylvania.

> > YOU CAN BE SURE ... IF IT'S

Westinghouse



Tested and proven Bondite", Bondar" and Mylar" insulating materials are used throughout the larger motors, guaranteeing the performance needed for heavy-duty service. 8 Do Foot Trace Mark



For outstanding motor protection a rugged new housing has been designed featuring internal bracket ribbing for greater protection against physical abuse



For flexible specification to match operating conditions, three types of bearings are offered scaled-for-life, twin-shielded gressable and scaled sheep.

STRADE-MARK 1 229F



## Latin Square, Univac and 36 years experience all three help assure National Seals are best engineered

Univac you know, experience you know; the Latin Square? An ancient, half-forgotten solver of problems having many variables. Today, National Scal engineers use it to reduce exploratory engineering time as much as 75%.

Old, new, time-tested and visionary—National Seal engineers embrace every approach that can help keep National Seals the best engineered in America. Results have been good. Syntech®, the milestone in synthetic rubber

seals and Micro-Tore®, major forward step in leather seals, are but two examples.

National Seal's advanced engineering, in plant or field, is ready now to help you solve sealing problems. This help is yours for a telephone call.

VITAL: Whatever seals you buy, save trouble and expense later on by specifying them "on the board." For safety, have specifications checked by a National Seal engineer.

NATIONAL SEAL Division, Federal-Mogul-Bower Bearings, Inc.

General Offices: Redwood City, California; Plants: Van Wert, Ohio, Redwood City and Downey, California

National Field Engineers At Your Service: Chicago, Ill., Room 462, McCormick Building.

HArrison 7-5163 • Cleveland, Ohio, 210 Heights Rockefeller Bldg., YEllowstone 2-2720

Dallas, Texas, 2520 West Mockingbird Lane, FLeetwood 2-7541 • Detroit, Mich., 13836 Puritan Avenue, Vermont 6-1909

Downey (Los Angeles Co.), Calif., 11634 Patton Rd., TOpaz 2-8163 • Indianapolis, Indiana, 2802 North Delaware St., WAlnut 3-1535

Milwaukee, Wis, 647 West Virginia St., BRoadway 1-3234 • Newark, N. J., 1180 Raymond Blvd., MItchell 2-7586

For More Information Circle No. 179 on Inquiry Card-Page 17

For More Information Circle No. 180 on Inquiry Card—Page 17->
Purchasing





## Two New B&D Tools speed up sheet metal jobs!

### Faster, lighter, easier handling, POWER-BUILT and packed with features

Whether you need the speed of shears or the more precise performance of nibblers-you'll find a lot to like in the new Black & Decker No. 16 Shear and No. 16 Nibbler.

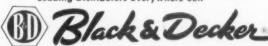
By actual test, they're faster and longer-lived than competitive tools. Their lighter weight means easier handling. Their centrifugal fans give cooler running. Each has exclusive construction features to stand up under the shock of sheet metal cutting.

Try these new tools at your nearby Black & Decker distributor. There's a No. 12 Shear, too, for heavier work. For full details on new features, write to: The Black & Decker Mfg. Co.,

Dept. 1706, Towson 4, Maryland. (In Canada: 80-86 Fleet Street, E., Toronto 2, Ontario.)

Look Under 10015 ELECTRIC in Yellow Pages

Leading Distributors Everywhere Sell



Portable Electric Tools—Power-Built to set the pace









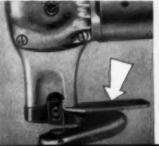


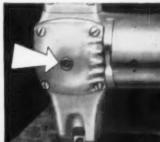




UP TO 3 TIMES FASTER than competition, new B&D Nibbler has twice the life, 20-30% less weight, reversible punch. Adjustable stripper plate (left), smaller diameter (right) are extra features.

50% FASTER than competition, new B&D Shear has one-third less weight than closest competitor, lasts much longer. Deflector plate prevents curling of material. Adjusting screw allows quick positioning of blade







VICTOR TORCH with cutting tip of Anaconda Tellurium Copper, which has the resistance to heat and wear required to maintain uniform flame characteristics through a long life of service.

## Tellurium Copper makes better cutting and welding tips



Two typical Victor torch tips of Anaconda Tellurium Copper-127 shown full size.

THE PROBLEM: Victor Equipment Company of San Francisco first used regular leaded copper rod in making tips for its line of cutting and welding torches. In some applications, however, the leaded copper did not stand up under high heat

THE SOLUTION: Victor tried Anaconda Tellurium Copper-127 Rod and found the answer. The Tellurium Copper had a much higher heat resistance. This meant long, trouble-free service for its precision-made cutting and welding torches in all types of applications. At the same time, the Tellurium Copper provided uniform machinability, especially important in drilling the deep holes prior to completion by swaging on mandrels.

FREE TECHNICAL SERVICE: No matter what your special problem may be, The American Brass Company can very likely furnish free-cutting copper and copper-alloy rod to meet the requirements of the product or the operation.

It is the function of the Technical Department of The American Brass Company to assist metal users in the selection of Anaconda Rod. This service is at your disposal without charge or obligation. Comprehensive data on composition and machinability of standard Anaconda Rod Alloys, together with specification references, weights and dimensions, are available in Publication B-3. For this booklet—or technical assistance—write: The American Brass Company, Waterbury 20, Conn.

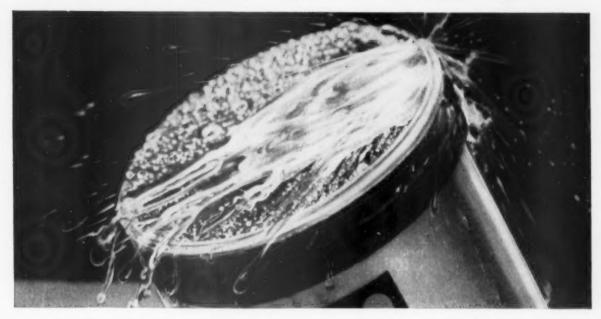
ANACONDA® COPPER and

MADE BY THE AMERICAN BRASS COMPANY

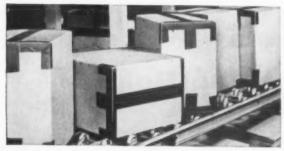
For More Information Circle No. 181 on Inquiry Card-Page 17

SPLASH TEST PROVES THIS TAPE IS

## WATERPROOF



Polyken Waterproof Tapes save you money with their "just right" ability to stick, seal, hold and protect



**Use less tape...** and less expensive tape... for assembly-line packaging. Low-cost *Polyken* Waterproofs provide vital protection against careless handling and exposure.



**Protect contents** from moisture and air. In this case, ink cans are sealed with a high-quality *Polyken* Tape that grasps quickly and firmly, yet pulls off without a struggle.

## Polyken

INDUSTRIAL TAPES

Polyken Sales Division

#### MAIL THIS COUPON NOW!

Polyken, Dept. P-F 309 West Jackson Blvd., Chicago 6, Illinois

Please send me physical properties and better information on Polyken Waterproof Tapes.

7.00

Company

Street Address

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## YESTERDAY: Rivets TODAY: High Strength Bolts

Tomorrow? More high strength bolts

—for that is the new way of erecting steel structures.

Less and less will there be the raucous rat-a-tat-tat of riveting, jangling the ears and nerves of the community. In its place, the faster, quieter, better technique of bolting.

What has helped make this better way of multi-story construction possible? RB&W high tensile bolts. These bolts make stronger connections than rivets. They can withstand tremendous stresses, can tie a towering steel structure together in less time than rivets... at less overall cost.

RBAW—A MAJOR SUPPLIER TO ALL INDUSTRY A leader in its field for over 112 years, RBaW turns out the finest fasteners for virtually every major industry. It is the largest independent producer of high strength bolts for construction.

Modern facilities, new techniques, long experience . . . all combine to make RB&W fasteners truly the "strong point of any assembly."

Standard fasteners properly applied can be a cost saver. Put it up to the RB&W "Fastener Man" to show you. Contact your nearest RB&W office.



#### RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. Additional sales offices at: Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. Sales agents at: Milwaukee; New Orleans; Denver. Distributors from coast to coast.

RBAW FASTENERS - Strong Point of any assembly



## Complete LINE OF END MILLS

FROM

## CHICAGO-LATROBE

Users of Chicago-Latrobe Drills and Reamers are accustomed to tools of finest quality...tools that give what customers call "extra cutting mileage." Now the C-L line has been broadened to include a complete stock of End Mills of the same superb quality. Ask for them on your next order.

#### Sold Through Industrial Distributors

A C-L Distributor in your area is now stocking Chicago-Latrobe End Mills. Call him. You'll get exceptional service. He will deliver promptly...he will provide competent technical help when it's needed. If your problem is unusually difficult, your distributor can call on a skilled Chicago-Latrobe Service Engineer for special help.



#### WRITE FOR CATALOG AND TECHNICAL MANUAL

The Chicago-Latrobe End Mill Catalog offers complete listings, plus technical information to make your job easier. Free on request.



## CHICAGO-LATROBE

412 W. ONTARIO STREET, CHICAGO 10, ILLINOIS
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| Firm | Address | City | State |

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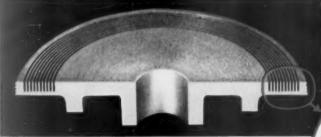
←For More Information Circle No. 183 on Inquiry Card—Page 17 JUNE, 1957

For More Information Circle No. 184 on Inquiry Card-Page 17

Chicago-Latrobe,

41

## Do Your Castings Require Sharp Corners



Like These?

The Denser Structure of

## EATON PERMANENT MOLD GRAY IRON CASTINGS

### Permits the Machining of Precise Corners

The fine dispersion of graphite in Eaton Permanent Mold Iron and its dense, non-porous, homogeneous structure make it an ideal material for many difficult machining operations where accurate dimensional results and sharp corners are essential.

Because its superior structure permits the machining of extremely thin sections and has the ability to take a high surface finish, Eaton Permanent Mold Iron is recommended for such critical applications as bearing retainers, connecting rods, pulleys, carburetor bodies, valve bodies, and service valves.

If you have applications which require these exceptional characteristics, our engineers will be happy to work with you.



The part shown above required that 10 grooves, .023" wide and .125" deep, leaving 9 lands .015" wide, be rapidly and simultaneously machined. Eaton Permanent Mold Iron proved to be the ideal material—completely eliminating the problem of curling chips in the small grooves, and crumbling of lands during machining.

### Check these Important Advantages:

- ★ Dense, non-porous, homogeneous structure
- \* Freedom from inclusions
- \* Excellent tensile strength
- \* Ability to take a high surface finish
- \* Freedom from leakage under pressure
- \* Intricately cored sections
- \* Uniformity of castings
- \* Higher machining feeds and speeds
- \* Substantially increased tool life

Send for Illustrated Descriptive Literature

## EATON

MANUFACTURING COMPANY
VASSAR, MICHIGAN

PRODUCTS: Engine Valves « Tappets » Hydraulic Valve Lifters » Valve Seat Inserts » Jet Engine Parts » Hydraulic Pumps

Motor Truck Axles » Permanent Mold Gray Iron Castings » Forgings » Heater-Defroster Units » Automotive Air Conditioning

Fastening Devices » Cold Drawn Steel » Stampings » Gears » Leaf and Coil Springs » Dynamatic Drives, Brakes, Dynamometers

## OSBORN BRUSHES worthy of your confidence



## Specify OSBORN you know it's good!

WHAT brushes are you using now... for painting, sweeping, cleaning of production finishing? If you see the name Osborn, you know you have top quality brushes, built for industry by the company that knows industry's problems. And you know you have the right brush selected from a complete line of efficient brushing tools.

Why gamble with quality. Simply specify Osborn. You'll save purchasing time, too, buying from one reliable source. The Osborn Manufacturing Company, Dept. U-34, Cleveland 14, Ohio.

Write for Catalog 210-C



Maintenance Brushes . . . paint brushes, brooms, dusters, all from a single, dependable source.



Power Brushes of the highest quality for a variety of cleaning and finishing operations.

Osborn Brusher (1)

BRUSHING METHODS, PAINT, POWER AND MAINTENANCE BRUSHES . BRUSHING MACHINES . FOUNDRY PRODUCTION MACHINERY

For More Information Circle No. 186 on Inquiry Card-Page 17

## "GRADE MARKED" SHELBY TUBING

overnight delivery practically anywhere



Results prove you get better jobs and save plenty by switching to

#### SHELBY SEAMLESS MECHANICAL TUBING

Precision-fit Guide Pin Bushing. The manufacturer of a wring-fit bushing switched to Shelby Seamless Tubing and produced a harder, stronger, more uniform, longer-lasting and better-fitting bushing.

Used in 100 vital parts. The famous manufacturer of a crawler-tractor makes over 100 parts from Shelby Seamless Tubing to improve the performance and strength of his heavy-duty machine.

Made top roller for half-tracks with Shelby Seamless . . . reduced rejects 100% . . . saved 38% in steel . . . cut cost 39.1%. Excellent machinability of Shelby Tubing was just the answer to this mass production operation.

Stainless Steel Shelby Seamless solved wave guide tube problems for manufacturer of Radar Antenna Systems. Eliminated production and plating difficulties previously encountered with

carbon steel. Solved corrosion problem . . . met weight and strength factors.

These are just a few of thousands of applications. If you'd like to know how and where you can use this time-and-money-saving seamless tubular steel to improve the parts you make, an inquiry will bring full information.

USS Shelby Seamless tubing is made by master craftsmen by the seamless process. Billets of the finest quality steel are first pierced, then precision-rolled to close tolerances inside and out. Thorough inspections and tests, all along the line, assure you tubing that's as near perfect as it is possible to produce.



### This Free Book

tells how you can cut production costs and produce better parts. Write for your copy today.

\*A National Tube Division Product

## NOW AVAILABLE AT U.S. STEEL SUPPLY

from 18 warehouses coast to coast



You can make better-quality parts faster and with less cost...
you save the wear and tear on tools...you save needless waste of steel.

It costs money to bore a hole through solid stock. It takes time. It wears out tools. It wastes steel. By using Shelby Seamless Mechanical Tubing you can eliminate or greatly reduce many time-and-labor-consuming operations connected with boring and machining.

Another important advantage in using Shelby Seamless Tubing is that its excellent machining characteristics and uniformity speed up production and improve the quality of your output. You can turn out parts by the millions, and the last part will be as metallurgically and dimensionally accurate as the first.

We stock USS Shelby Seamless Tubing in a complete range of sizes, in different wall thicknesses, various finishes and steel analyses, in all of our 18 warehouses. Your order will be shipped to you in neatly strapped bundles, and each bundle will carry U. S. Steel Supply's exclusive "Grade Mark" seal which clearly shows the grade in that particular bundle. Thus, without altering your stocking procedure in any way, you have positive identification of each grade. This new Grade Mark Service speeds handling, too, and is another reason why it pays to buy from U. S. Steel Supply.

All orders are shipped promptly.

J. S. STEEL SUPPLY

DIVISION

P. O. Box 1099, Chicago 90, III.



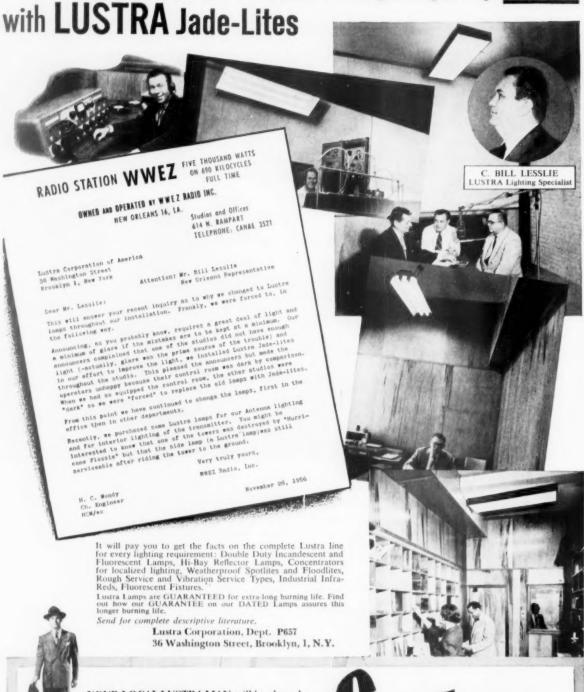
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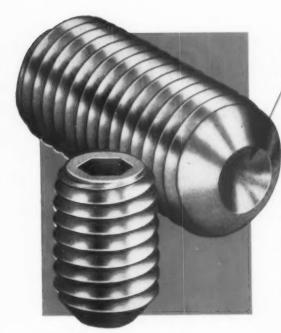
For More Information Circle No. 187 on Inquiry Card-Page 17

Now WWEZ Employees Enjoy the Lighting They Wanted



YOUR LOCAL LUSTRA MAN will be pleased to give you the benefit of his specialized experience on YOUR LIGHTING PROBLEMS. He can show you how with LUSTRA DOUBLE-DUTY GUARANTEED DATED LAMPS you can "See more and save more."





## ALLENPOINT will give you a bulldog grip at no premium in price!

Allen's scientific redesign of the cup diameter on set screws gives greatly increased resistance to withdrawal torque. You can count on Allenpoint Set Screws to stay tighter longer, under heavy strain and vibrations. This dependable premium performance of Allenpoints is yours to use without increasing the cost of manufacturing your products.

Uniform Class 3A Threads

Allenpoints' smooth, uniform threads prevent off-lead conditions like Fig. 1. With Allenpoints, you have full,

even contact between the engaging flanks of the threaded members (Fig. 2) -and a tight friction lock over the entire length of the Allenpoint Set Screw.



Strong, clean, deep sockets allow full wrenching leverage



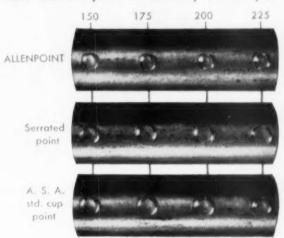
Sockets of Allenpoint Set Screws are cold forged to produce a deeper, smoother socket. No broach chips to interfere with proper seating of the key. This "pressur-forming" preserves the long steel fibers throughout the length of the screw-stronger walls allow maximum tightening torque.

#### One more full thread on ALLENPOINTS!

Allenpoint Set Screws have one more full thread than serrated point set screws. That means more holding power-especially important when you're using short lengths.



ALLENPOINT's performance compared for you



These actual-size, unretouched photographs show the cup pattern made by Allenpoints, serrated points, and A.S.A. standard cup point set screws in a 3/4" steel shaft. At each degree of tightening force, Allenpoints make a full circle pattern, penetrating deeper for greater holding power.

We'll be glad to send you more information and samples of Allenpoint Set Screws and other Allen Socket Screw products.

Stocked and sold by leading industrial distributors everywhere

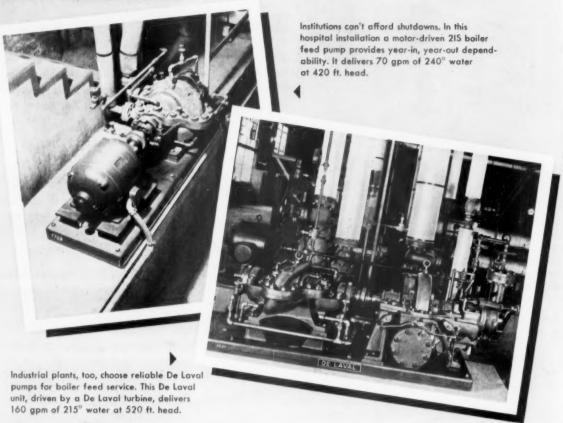
MANUFACTURING COMPANY Hartford 2, Connecticut, U.S.A.



## **DE LAVAL**

TWO-STAGE HORIZONTAL PUMPS

## for dependable boiler feed service in institutions...industrial plants





There are good reasons why De Laval 21S-2KS two-stage horizontal split case pumps give long, economical boiler feed service. They are designed with • back-to-back impellers for balanced hydraulic thrust • easily replaceable threaded impeller wearing rings • long life labyrinth case rings • ring oiled ball bearings — plus ten other important design features.

These De Laval pumps are available in sizes from 2" to 8" discharge, for capacities from 75 to 3,000 gpm and heads to 750 ft.

Write for Bulletin 1501 giving complete data.

## DE LAVAL Boiler Feed Pumps

DE LAVAL STEAM TURBINE COMPANY

807 Nottingham Way, Trenton 2, New Jersey

For More Information Circle No. 190 on Inquiry Card-Page 17

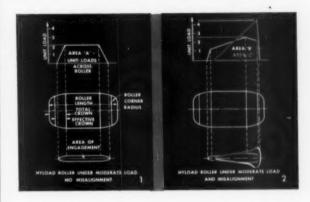
ONE OF A SERIES . . .

What makes
Hyatts run
smoother
and longer?

## PROPER LOAD DISTRIBUTION ON ROLLERS

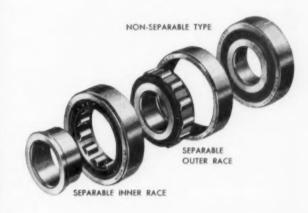
In any roller bearing, the design and quality of the rollers themselves vitally affect the performance of the entire bearing. The distribution of the load, both within the roller's area of contact and across the roller, must be expertly engineered. Endloading and conditions of misalignment can seriously reduce the life of a roller bearing. How HYATT minimizes these effects is detailed at the right.

You will find full selection and application data in HYATT Catalog 150, or call your nearest HYATT Sales Engineer. Hyatt Bearings Division, General Motors Corporation, Harrison, N.J., Pittsburgh, Detroit, Chicago and Oakland, Cal.



## ROLLER CROWNING MINIMIZES EFFECTS OF BEARING MISALIGNMENT

The unit load on any roller is distributed axially in a uniform manner except at the ends where crowning has been provided. Figure 1 shows how the unit load drops off to zero at the ends iff the area of contact. The summation of unit loads represented by area "A" is the total roller load. This same load under conditions of misalignment (Figure 2) must result in an area "B" equal to area "A"; but the maximum unit load is considerably greater and the misaligned bearing will therefore have a shorter life. However, if the same total load is applied to an uncrowned roller in a misaligned bearing, as shown in red, a much higher unit load (area "C") results, which would still further reduce the life of the bearing. This demonstrates graphically why HYATT Hy-Load Series Bearings with roller crowning will run smoother and longer under conditions of misalignment.





HY-ROLL BEARINGS

For More Information Circle No. 191 on Inquiry Card-Page 17

## Need Tubing? Then.

## LOOK NO FURTHER FOR QUALITY

Because BISHOP small diameter tubing is not excelled in accuracy of I.D. and O.D. . . . in dimensional precision . . . in tolerances . . . in finish.

Whether it be for a precision part in an instrument ... a heat exchanger in today's high speed aircraft ... a thermocouple ... an electronic or atomic application.

Wherever tubing is needed to meet corrosion, heat, shock, stress, psi pressure resistance and vibration . . . for highest quality and performance specify BISHOP tubing, at comparable prices.

SEAMLESS AND WELDED AND DRAWN STAINLESS STEEL TUBING

Mechanical, Capillary, Hypodermic and Aircraft Grade

(.008" to 1.000" O.D.—.003" to .083" Wall)

NICKEL AND ALLOY TUBING
(up to .625" O.D.)

TUBULAR FABRICATED PARTS

Flanged, Flared, Milled, Slotted, Swaged and Threaded

GLASS-TO-METAL SEALING ALLOYS

CLAD METALS & COMPOSITE WIRES

Catalogs on Request. For Prompt Service, Fast Deliveries Call Malvern, Pa. 3100



I RISHOP & CO Platinum Works

Malvern, Pennsylvania

92891 ODX HEAT \*03042 J.BISHOP & CO

## slip off the old disc holder . . . slip on the new

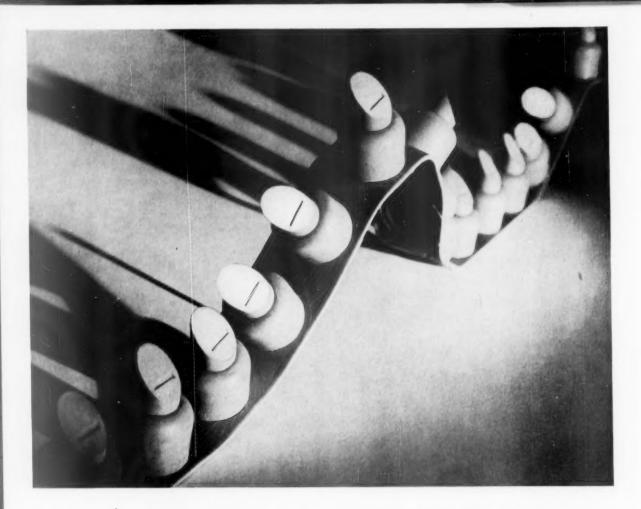
That is the way industrial maintenance men who know change discs on the No. 1101 O-B Globe valve. With just a few simple movements they have their production or service line back in operation with the least amount of lost time.

To do this they keep a supply of extra disc holders handy and when a disc needs changing they just switch disc holders. At their convenience they then remove the old disc from its holder and replace it with a new one, ready for the next change.

Ask your distributor about the No. 1101 O-B Globe valve with the replaceable disc holder. He'll gladly show you how it

OHIO BRASS COMPANY . MANSFIELD, OHIO





### what is it?

You could get stuck on this one, so we'll give you a hand. It's a strip of mucilage bottle spreader tops — fresh from the mold. This is one of hundreds of custom molded rubber parts manufactured by the Tyer Rubber Company.\*

Since 1856, Tyer has been working with practically every major industry, converting ideas into practical, workable, custom molded rubber products.

Preliminary discussion of your ideas or problems is followed by compound selection and mold design. Tyer Engineers will be glad to furnish complete details. Send coupon below.

\*Listed in Sweet's Product Design under section 2c/TY. Custom Molded Rubber Parts.

## TYER Rubber Company

ANDOVER, MASSACHUSETTS, U.S.A.

TYER RUBBER COMPANY, Andover, Mass., U.S.A.	
Gentlemen: Please have Tyer Sales Engineer call on	n (date)
NAME	TITLE
STREET	FIRM
	ZONE STATE

COME WITH US AND

COME WITH US AND

MEET SOME OF THE

MEET SOME OF THE

MERCHANT MEMBERS OF

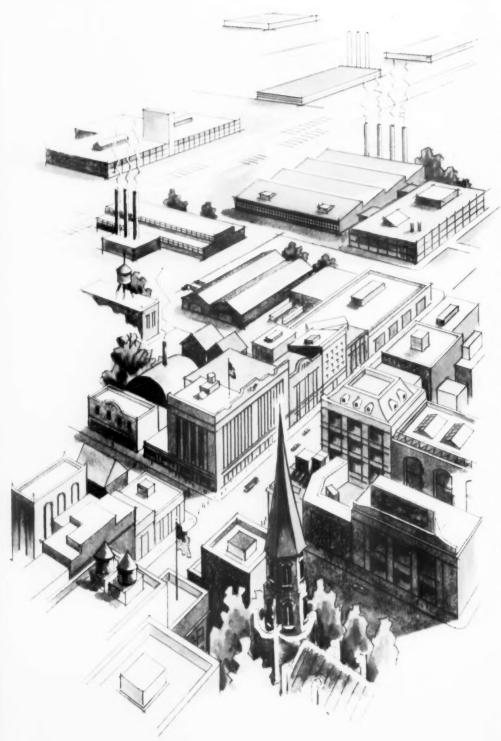
MAPORTANT MEMBERS OF

MAPORTANT MAM FAMILY



## YOUR PUTNAM DISTRIBUTOR.

## Serves Local Industry



We, at Putnam Tool C distributor organization making for 20 years. coast-to-coast, it consists men, respected member make their business a c

Our distributors... and form an invaluable line economic system. Becauestablishments we, as a have throughout the crooms and local inventoran be sold and quickles Because of the nature of men of diversity...hot things. Putnam distribution with many tools and the turing processes. Into

These men and their pl gral part of their come of labor . . . sometic ln either case they are st taxes and services comunal wealth.

salesmen, bookkeepers labor experts, etc.

With their roots deep in these men take an activities are found on the church and school municipal governments.

American . . . solid busi

This is why we, at Putna a privilege to be asso express our thanks for R . . .

## ry and the Community

m Tool Company, are proud of our panization . . . which has been in the 0 years. Strategically located from it consists of carefully chosen businessed members of their community who siness a career of service.

In and countless others like them . . . It was like them in the chain of America's tem. Because of them and their business to we, as a manufacturer of end mills, out the country: warehouses, display that inventories from which our products and quickly delivered to industry.

e nature of their business they must be ity . . . have wide knowledge of many m distributor personnel are familiar ols and their applications in manufactes. Into the bargain they must be okkeepers, market analysts, tax and , etc.

d their places of business are an intetheir communities. They are employers . sometimes large, sometimes small. they are substantial business men whose ervices contribute materially to com-

ots deep in their respective communities e an active part in civic affairs. Putnaming found on the rosters of service clubs, dischool activities, and serving with the ternments. They are in short: thoroughly solid business men . . . good neighbors.

e, at Putnam Tool Company, consider it to be associated with these men and to hanks for the things they do.





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2981 CHARLEVOIX AVENUE . DETROIT 7, MICHIGAN

## OVER 1700 STANDARD TYPES AND SIZES OF PUTNAM HI-SPEED END MILLS



For your convenience and quickest delivery, Putnam catalog lists over 1700 standard types and sizes of highest quality . . . faster cutting . . . longer lasting Hi-Speed end mills. These standard end mills are carried in stock at the factory and by Putnam distributors throughout the country. This means . . . there is a Putnam standard for nearly every milling operation . . . you can select a standard end mill from the catalog today and it can be on your job tomorrow . . . simply call your local Putnam distributor.



## COMPLETE LINE OF STANDARD END MILLS for ALUMINUM

Standard End Mills . . . For the first time you can select from a complete line of standard end mills designed specifically for milling aluminum . . . Putnam stocks 185 standard types and sizes.

New Designs... These standard end mills have been developed through years of research and experience on aluminum applications. Over a year ago, Putnam introduced the first standard end mills designed for milling of aluminum. Today, no other manufacturer offers as complete a line of standard end mills for aluminum.



### **PUTNAM POSTIV-LOK END MILLS**

Eliminate Integral Shanks

Reduce Change-Over Time

**Assure Positive Locking** 

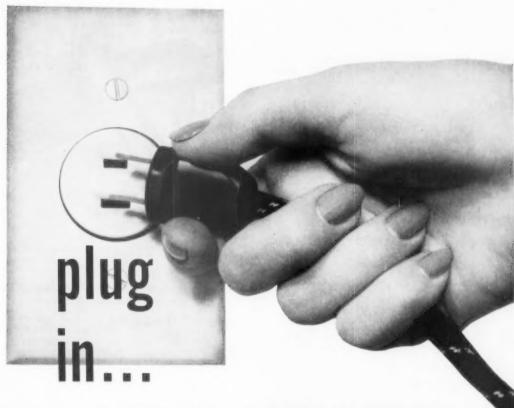


4112 LITHO IN U.S.A. -250 M DO-



PUTNAM

2981 CHARLEVOIX AVENUE . DETROIT 7, MICHIGAN



## and you put Synthane laminated plastics to work



Automatic Circuit Recloser Parts made from Synthane sheet and tube provide insulation for high voltages.

Think of the many conveniences available simply by plugging into an electrical outlet.

On both sides of the outlet Synthane laminated plastics are at work in power generation and distribution, home appliances and other electrical equipment.

You find Synthane laminated plastics in circuit breakers, buss bar coverings, transformers. Synthane laminated plastics are important insulators in toasters, ranges, food mixers. Synthane is at work in thermostats, voltage regulators, power tools.

Synthane is valued in electrical appli-

cations chiefly for its high dielectric strength, low moisture absorption and low dissipation factor plus its additional properties of dimensional stability, machinability and mechanical strength. Synthane is available in over 30 standard grades in sheet, rods, tubes or you can avail yourself of our complete fabricating

For more information about the many properties of Synthane and how you can benefit by using Synthane materials and fabricating services, write for our product catalog. Synthane Corporation, 7 River

Road, Oaks, Pennsylvania.



DIELECTRIC STRENGTH



IMPACT STRENGTH



HEAT RESISTANCE



LIGHT WEIGHT



SYNTHANE CORPORATION, 7 RIVER ROAD, OAKS, PA.

For More Information Circle No. 196 on Inquiry Card-Page 17



Here's what

## WESTERN

means by a complete job

and here's how you save time, money and headaches



## For the purchasing agent — money saved

Value Analysis proves that you are generally time and money ahead by purchasing a complete assembly rather than a myriad of component parts. You need just one purchase order, and you get the

distinct advantage of centralized responsibility. We do the complete job, too, including finishing operations—heat-treating, grinding and pentrating.



#### For the design engineer time saved

WESTERN works with you from the design stage on, helping you to develop the correct design for maximum product quality and production economy. No other manufacturer exceeds WESTERN

In experienced development engineering of precision parts for the automotive, aircraft and appliance industries.

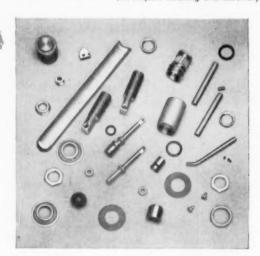


#### For the production manheadaches saved

WESTERN's unexcelled production facilities, plus heavy experience in close tolerance work, make us a valuable member of your production team. From wire size up to a husky 4 \(^{2}\)'' round, our

terrific turning capacity assures delivery of your precision parts requirements the way you want them—the day you want them.

**NOT This** —a myriad of separate parts that still require finishing and assembly.



Why not send us your blueprints for quotation-today?

### WESTERN AUTOMATIC

Machine Screw Company 378 Woodland Avenue, Elyria, Ohio

Write for Free bulletin describing WESTERN'S complete production facilities

PRECISION SCREW PRODUCTS, PARTS AND ASSEMBLIES SINCE 1873

For More Information Circle No. 197 on Inquiry Card-Page 17

# What is the <u>exclusive ingredient</u> that makes Continental steel containers tops for quality and sales appeal?





Eastern Division: 100 E. 42nd St., New York 17 

Central Division: 135 So. La Salle St., Chicago 3 

Pacific Division: Russ Building, San Francisco 4

For More Information Circle No. 198 on Inquiry Card-Page 17

## a precision job well done...

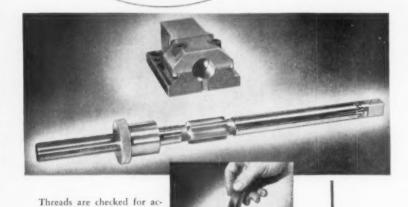
#### PROBLEM:

To produce a 1"-32 NEF left hand thread  $1^1/2$ " long to the extremely close pitch diameter tolerance of  $\pm .00115$ " — thus greatly increasing the precision of the work.

#### SOLUTION:

A 16" overall 1"-32 NEF pilot tap was manufactured by BATH to thread to the required tolerance.

This special 16" Bath tap, threads the feed nut (shown right), which is part of a truing device that controls the grinding quality of precision Internal Grinding machines manufactured by The Heald Machine Co., Worcester, Mass. — a subsidiary of the Cincinnati Milling Machine Co.



Here's an example of how the cooperative efforts of Bath and Heald engineers succeeded in solving a difficult production problem.

The same service is available to you — as a plus feature that may well save you time and money. Your inquiry will bring full details about Bath taps and gages.

Heald Internal Grinding machines are available in many types and sizes . . illustrated below is the Model 190 Centri-Matic.

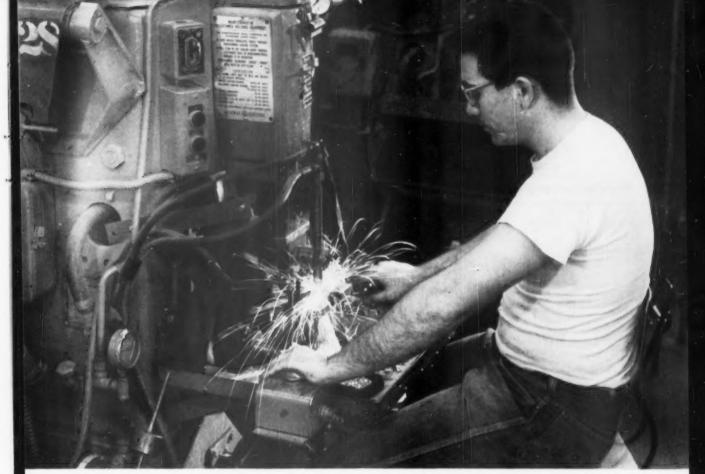


curacy with a Bath plug thread gage.

32 Grafton St., Worcester, Mass.

CYLINDRICAL AND THREAD GAGES . GROUND THREAD TAPS . INTERNAL MICROMETERS





Resistance welding machine is operated by a two-button start-stop station and two heavy-duty stations with mushroom-head buttons.

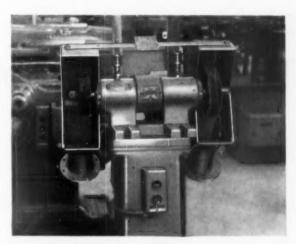
## Two ways General Electric pushbuttons save you valuable production time

**FAST DELIVERY.** You can save valuable production time by using General Electric standard- or heavy-duty pushbuttons because G-E distributors keep a complete stock of these stations. You can get the forms you want, when you want, simply by calling your General Electric distributor.

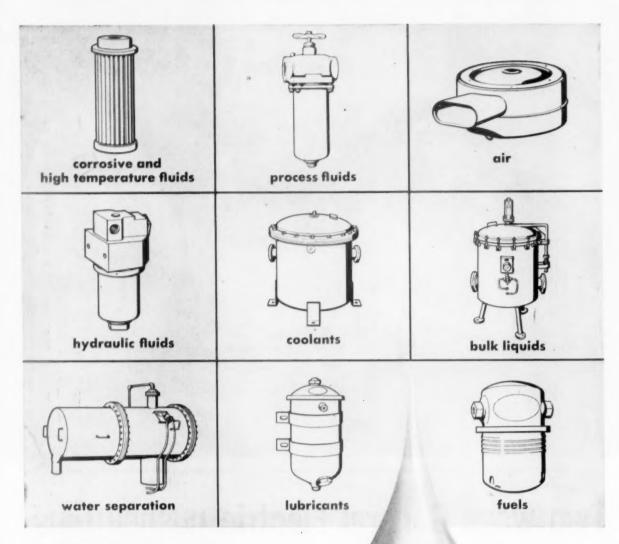
**DEPENDABLE OPERATION.** Once installed, General Electric pushbuttons save you more production time because they are built for dependable service. Durable enclosures are made of steel for strength and safety. Large silver contacts are designed for long life. Good contact is provided by strong button springs which reduce chance of contact freezing.

Standard-duty pushbuttons are available in 1 to 3 unit stations, heavy-duty push buttons in 1 to 6 unit stations. Contact your nearest G-E distributor for more information, or write advertising Section 733–29, General Electric Co., Bloomington, Ill. Ask for bulletin GEA-6544, "Standard-and Heavy-duty Pushbuttons."





General Electric standard-duty pushbutton station provides economical and dependable start-stop operation as on the grinder above.



There are over 2,000 filter types available right now from Purolator. Before you consider special, custom made filters, let Purolator know your filtration problem. Write Purolator Products, Inc., 970 New Brunswick Ave., Rahway, N. J.

## There's a Purolator filter for every known fluid

Filtration For Every Known Fluid

## PUR

## "LYON QUALITY DESIGN

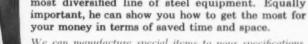
makes

## THE DIFFERENCE!

STEEL SHELVING, for example. At a glance, all steel shelving may look very much alike but there's a world of difference-in ease of assembly, adjustability, rigidity and durability. That's why you should check Lyon before you buy.

This same quality design makes the difference in every one of the more than 1500 standard Lyon items, a few of which are shown below.

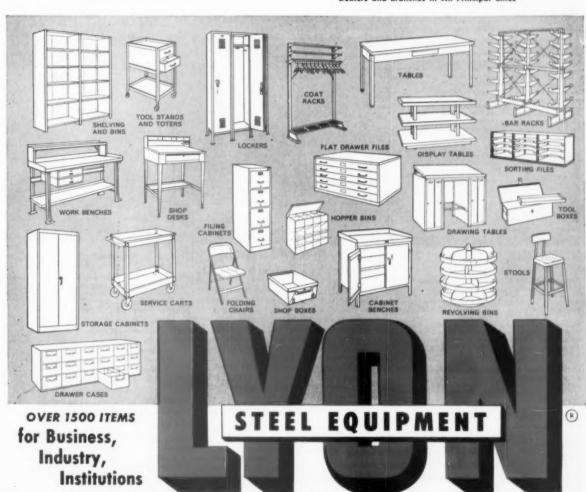
CALL YOUR LYON DEALER. He offers the world's most diversified line of steel equipment. Equally



We can manufacture special items to your specifications.

### LYON METAL PRODUCTS, INC.

General Offices: 633 Monroe Ave., Aurora, III. Factories in Aurora, III. and York, Pa. Dealers and Branches in All Principal Cities



Patented LYON Clip and Stud Design provides fast, easy assembly and adjustment without use of tools!

For More Information Circle No. 202 on Inquiry Card-Page 17

## U.S.I. CHEMICAL NEWS

June

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

1957

#### Polyethylene Resins Are Now Being Foamed

Polyethylene can now be obtained from processors as an expanded, closed-cell, flexible foam in extruded and molded forms. The cells are small and uniform and contain a harmless, inert gas.

Indications are that the foamed material retains all the basic, desirable properties of polyethylene—its flexibility, toughness, chemical resistance and moisture resistance. The foam won't flake or dust. It is being evaluated for gaskets, cap and closure linings, insulation, shock absorbers, packaging, buoys and life floats, and for radiation shielding.

life floats, and for radiation shielding. Foam density can be varied from 10 to 50 pounds per cubic foot. As density goes up, tensile strength and load recovery increase and deformation decreases. To date polyethylene foam has been fabricated with common wood and metal working tools, and has been drilled, machined, sawed, hot gas welded and friction and heat sealed.

#### TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing the Editor, U.S.I. Chemical News.

New one HP homogenizer said to do jobs usually entrusted to 3 to 5 HP models is now on the market. Designed to process about 1000 lbs. per hour of semi-postes or other viscous matrials up to 30,000 cps, at 3600 rpm. No. 1216

An index of all isotopes available commercially, and their sources, can be purchased as a 64-page book listing over 2000 items. Included are stable and radioactive isotopes and hundreds of isotopes the compounds.

Portable paper laminator which can be used to preserve documents is described in a recent pamphlet accompanied by a price sheet which is itself covered with the preserving film. No. 1222

To fireproof fabrics right in the home, a powdered anti-flame agent has been developed which is non-toxic and does not harm the appearance, hand or comfart of the fabric. Used as a rinse after the regular wash, it must be reapplied after each laundering.

New marking lak for plastics and other hard surfaces uses pigments to get highly apaque colors. Is claimed non-corosite, non-etching, fast-drying and with excellent adhesion. Wears well and resists water, many solvents. No. 1224

Non-toxic developer for blueprints is said to combine advantages of potash or hydrogen peroxide with these additional features: does not cloq drains; washing after development may be omitted; excellent recovery from fading. No. 1230

New technical data sheets on trimethyl and triethyl aluminum have just been published. Both compounds are used as fuel ignitors in ram and turbojet engines, as polymerization catalysis and intermediates. No. 1231

## U.S.I. and Mallory-Sharon Form New Subsidiary to Melt and Fabricate Zirconium

Reactive Metals, Inc. Will Concentrate on Ingots and Mill Products to Help Speed Growth of Zirconium Industry

Formation of Reactive Metals, Inc., a joint enterprise of U.S.I.-National Distillers and Mallory-Sharon Titanium Corp., marks another step in the evolution of zirconium from a specialty business into a full-fledged commercial industry. For the present, the new company will melt zirconium and its alloys and will manufacture zirconium mill products. Production will be expanded soon to include hafnium, and later to include other metals of value to the atomic energy pro-

#### New Polyethylene Bottle Has Built-In Sterilization

A manufacturer has introduced a selfsterilizing polyethylene hottle in which a permanent type antiseptic is incorporated in the resin at the time it's molded. The product seems to be an effective answer to an old problem; how to sterilize a polyethylene container without subjecting it to high heat.

Self-sterilization by chemical means is not new, having been used for a number of years in textiles, leather and plastics. However, the new polyethylene bottles are believed to represent the first successful use of the principle in this field. Until now, polyethylene bottles which required sterilization have been irradiated, a costly process that offers less permanent protection than many chemical antiseptics.

In the new product, a liquid germ-killer (nature not disclosed), is added to the polyethylene as it goes into the mold. As little as one gallon is claimed to render 5,000 lbs. of resin self-sterilizing for an indefinitely long time.

The new bottles are expected to find wide acceptance in the drug and pharmaceutical fields.

#### Trimethyl and Triethyl Aluminum Piloted by U.S.I.

Trimethyl and triethyl aluminum, highly flammable liquids which ignite spontaneously in air, are now being produced by U.S.I. in pilot plant quantities. At present they are being tested as ignitors and fuels for ram jet and turbo jet engines, and also show possibilities as polymerization catalysts, and intermediates for chemical synthesis.

A sodium-based process is used to synthesize these two materials in the pilot plant, a process which can be used to produce them in commercial quantities as well.

New ingot melting facilities will be constructed at Ashtabula, Ohio, site of U.S.L. National Distillers' new zirconium sponge plant, Auxiliary facilities will be provided to insure production of sound ingots, both alloyed and unalloyed, ready for fabrication to any type of product. Mallory-Sharon's years of experience in melting and fabrication of titanium will be utilized to the fullest extent.

Will Ease Supply Situation
Formation of the new subsidiary will make
it possible for users to buy zirconium sponge
or platelets from U.S.L.National Distillers,
or finished ingots, billets or mill products

from Reactive Metals at firm prices with firm delivery dates.

Common sizes of ingots and billets will be carried in stock. This will greatly reduce

existing procurement delays.

U.S.I.-National Distillers has lowered the price of zirconium sponge considerably through technical advances, but the company feels that similar progress must be made in melting and fabrication before zirconium can fulfill its proper role in the metals and chemical industries. This purpose is to be served by the new jointly owned subsidiary. Backed by the technical and financial resources of the parent companies, it will devote its efforts solely to the processing of zirconium and other reactive metals.

#### PRODUCTS OF U.S.I.

Alcohols
Animal Feed Products
Esters, Ethers and Ketones
Inorganic Chemicals
Intermediates and Fine Chemicals
Metals
Pharmaceutical Products
Polyethylene Resins

## DUSTRIAL CHEMICALS CO. Division of National Distillers and Chemical Corporation 99 Park Avenue, New York 16, N. Y.

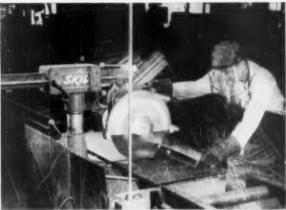
Atlanta · Baltimore · Boston · Buffalo · Chicago · Cincinnati Cleveland · Dallas · Detroit · Houston · Indianapolis · Kansas City, Mo. Los Angeles · Louisville · Minneapolis · Nashville · New Orleans New York · Philadelphia · Pittsburgh · Portland, Ore. · St. Louis Salt Lake City · San Francisco · Seattle

U.S.I. SALES OFFICES



#### Saves 30% time

The Columbus Heating & Ventilating Co., Columbus, Ohio, owns an all-around inventory of SKIL tools. The reason: practically no maintenance, lightweight, better balance, adaptability. Mr. Clarence Fine, shop foreman, singled out the SKIL Model 825 Disc Sander as a tool that stands up under continuous operation. "In addition", says Mr. Fine, "it's 30% faster than anything else we've tried."



### Saves 8 hours labor costs a week

Five years ago, Trailmobile, Inc., Cincinnati, bought a SKIL Model 450 Radial Saw. Since that time four more such saws have been added with these results: "Each one saves us one 8 hour day labor costs per week", says Mr. Herman Suter, portable tool supervisor. "We have eliminated the sanding operation of rough edges caused by a cutting torch."

## It's true! You SAVE with SKIL Tools



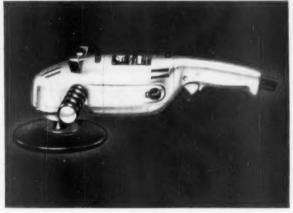
### Saves \$100.00 per week

"Our new SKIL Shear paid for itself in the first week", says J. M. McLain, owner of J. M. McLain & Sons Trailer Company, Houston. "In using other makes of shears we found that maintenance costs were about to run us out of business. Some operations were cut from 30 minutes to 1½ minutes. My men like SKIL Shears because they are easier to handle, adaptable, and are cheaper to run."



Send for FREE Booklet on Power Tools

Made only by SKIL Corporation, Chicago 30, Illinois, Factory branches in all leading cities.

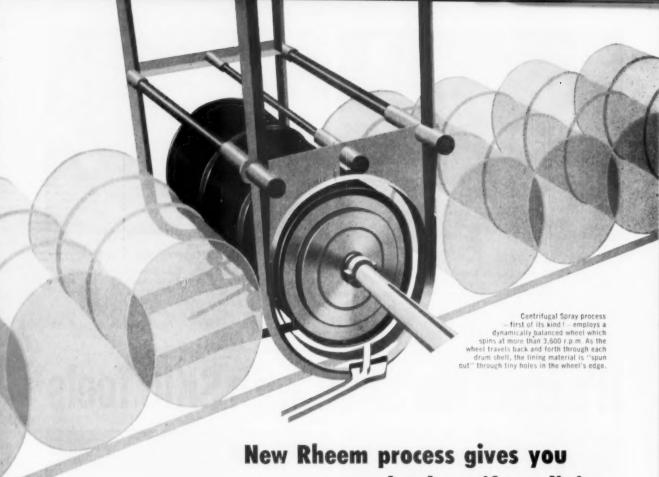


### YOU, TOO, CAN SAVE

NEW! SKIL 7" Model 852 Disc Sander. Save time and effort on the toughest sanding, wire brushing, grinding. New, powerful motor stands up under the heaviest work load. No matter what you have to sand, grind, saw or drill, there's a SKIL tool that can do the job better, faster, cheaper. Ask your SKIL distributor to show you why. Or use the coupon below for further information.

SKIL Corporation, Dept. P-67 5033 Elston Avenue Chicago 30, Illinois	In Canada: 3601 Dundas Street West Toronto 9, Ontario
Please send me name	of nearest distributor.
Please send me FREE	booklet on SKIL power tools.
Name	Title
Address	
CityZone	State

For More Information Circle No. 204 on Inquiry Card-Page 17



## a completely uniform lining

## ...drum after drum after drum

Uniform lining thickness-controlled to within .1 of a mil Uniform viscosity of lining materials with lower solvent content Uniform application:

- · Completely automatic · No air used in spray Spray travels same distance to coat all surfaces
- · No air turbulence, primary air or drum rotation

#### Uniform curing:

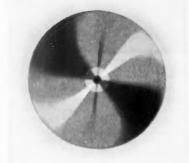
- 3-stage ovens with controlled temperatures
- · Controlled air flow by placing drums upright in oven

This new Rheem Centrifugal Spray process is so fully automatic, drum linings can't vary from one drum to the next, one day to the next.

It's a vast improvement over all other lining methods. For it does away with troublesome air turbulence that causes oil, dust and dirt to gum up linings

applied by conventional methods. It minimizes pinholing and blisters. It eliminates chance for human errors. It even helps the new Rheem hightemperature, vertical ovens do a still

better curing job! Why not contact our nearest office for full details.



New Centrifugal Sprayer spins off a continuous curtain of atomized lining material at a uniform rate.



WORLD'S LARGEST MAKER OF STEEL SHIPPING CONTAINERS Rheem Manufacturing Company

Richmond and South Gate, Calif. • Chicago • Linden, N. J. • New York • Houston • New Orleans • Sparrows Pt., Md.

# TOLEDO No. 22 PIPE VISE



## Something new in quality, low cost pipe vises. Look at these TOLEDO Quality Checked features

- Strong, sturdy frame—but the No. 22 weighs only 12 lbs.
- Large diameter Acme vise screw threads for longer service and they bear directly on upper jaw
- Yoke mounts quickly for right or left hand use
- Hardened steel, interchangeable jaws designed for most effective grip regardless of pipe or conduit size—1/8 to 21/2"
- Large bolting area—contact points evenly distributed for secure attachment of vise
- Also available soon in ¼ to 4½" capacity



The No. 22 features safe pipe benders pipe cannot slip out Quality Che

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS

TOLEDO

PIPE THREADERS . PIPE WRENCHES . PIPE MACHINES

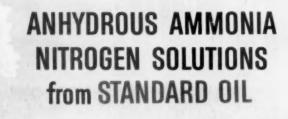
THE TOLEDO PIPE THREADING MACHINE COMPANY, TOLEDO 4, OHIO

Send for new catalog. Watch for TOLEDO'S new vise stand with integral yoke or chain vise.

←For More Information Circle No. 205 on Inquiry Card—Page 17 JUNE, 1957

For More Information Circle No. 206 on Inquiry Card-Page 17

67



convenient plant location

The Standard Oil Anhydrous Ammonia and Nitrogen Solutions plant location beats them all for convenience to you. The plant is in the Hammond, Indiana, area. Its handy location means you can place an order and get delivery fast. You can control shipments better because there is a shorter distance for the shipment to travel. More than this, Standard's NH<sub>3</sub> and Nitrogen Solutions plant is in the midst of the biggest rail center in the world. You get fast, often one-line, hauling. Trucks can get to the plant from all directions by way of three U. S. Highways—12, 20 and 41.

Take advantage of this convenient plant location. Order Ammonia and Nitrogen Solutions from Standard. Call your local Standard Oil office in any of the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY
(Indiana)

STANDAR



Bostitch D9AD Stapler

power drives staple into

carton flaps and
clinches from the outside

## "Stapling results in a 20% saving"

says PLANT SUPERINTENDENT

Plant superintendents are always looking for ways to cut costs. When a Bostitch Economy Man called at the plant where this photo was taken, a brief demonstration was enough to prove the advantages of a Bostitch air-driven stapler over gummed tape.

In practice, results are:

- 1. 20% saving in fastening time
- 2. Neater, cleaner package
- 3. More space left free for advertising and stenciling on container
- 4. Improved employee morale and efficiency

Call your nearest Bostitch Economy Man (375 of them in 123 cities) or mail coupon.

#### Fasten it better and faster with

# BOSTITCH SAVING NOW! BOSTITCH, 726 Briggs Drive, East Greenwich, R. I. Send me a folder about D9AD Air Driven Stapler Ask an Economy Man to call on me We are now using (please check) gummed tape steel bands glue other Name Company Address City Zone State

←For More Information Circle No. 207 on Inquiry Card—Page 17 JUNE, 1957

For More Information Circle No. 208 on Inquiry Card-Page 17

69



# Reduce your instrument supplies inventory . . .

let this Honeywell Central Supply Depot stock them for you

You save storage and inventory control costs, when Honeywell stocks your instrument parts and accessories at this Central Supply Depot in Philadelphia.

Recorder charts and inks, thermocouple wire and wells, extension wires, and all the other instrument supplies you need are stocked here. Thousands of different kinds of instrument parts, too.

You can easily order whatever you need through your nearby Honeywell branch office. Emergency orders are teletyped to the Supply Depot within minutes. Most orders are shipped within 24 hours.

Prompt delivery of parts and accessories from the Central Supply Depot is but one of the many services that make instrumentation by Honeywell mean far more than just instruments.

MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.



Honeywell

First in Controls

#### Three Rust-Oleum DIFFERENCES that save you time, money and metal!

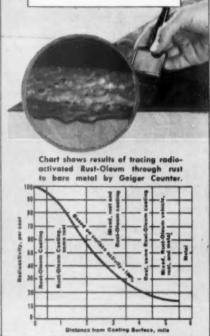
#### GOES ON FASTER

No tedious surface preparations usually required - just scrape and wirebrush to remove rust scale and loose rust then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust.



#### STOPS RUST

Rust-Oleum's specially-proc-essed fish oil vehicle works down through the rust into the tiny, microscopic pits in the bare metal where it drives out air and moisture to stop rust.



#### LASTS LONGER

Applied over rust, Rust-Oleum lasts longer for the over-theyears protection you need. It resists sun, salt water, salt air, fumes, heat, humidity, moisture, weathering.



These are just a few of many important differences that separate Rust-Oleum from ordinary coatings. When you consider that Rust-Oleum covers approximately 30% more area, depending upon surface condition and porosity . . . and the fact that Rust-Oleum finish coatings, with the same fish oil vehicle, are available in nearly every color for double protection . . . it's just good, common sense to use Rust-Oleum. Prompt delivery from Industrial Distributor stocks. Write for illustrated literature with color charts.

# RUST-OLEUM



Rust-Oleum is distinctive as your own fingerprint. Accept no substitute.

ATTACH TO YOUR LETTERHEAD - MAIL TODAY Rust-Oleum Corporation

2435 Oakton Street . Evanston, Illinois

- Complete literature with color charts.
- 30-page report on Rust-Oleum penetration.
- ☐ Nearest source of supply.

Rust-Oleum and Stops Rust are brand names and registered trademarks of the Rust-Oleum Corporation.

←For More Information Circle No. 209 on Inquiry Card—Page 17 JUNE, 1957

For More Information Circle No. 210 on Inquiry Card-Page 17



### NEED EXTRA CARE...LESS TARE?



Here's another example of how Gaylord helps shippers cut costs. Strong, shock-absorbing corrugated packaging replaces heavier materials—with complete protection.

Savings like this might well roll back new increases in costs that are shrinking your profit margins.

To put your savings into effect, call your nearby Gaylord packaging engineer right now.

CORRUGATED AND SOLID FIBRE BOXES . FOLDING CARTONS . KRAFT PAPER AND SPECIALTIES . KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION \* ST. LOUIS

DIVISION OF CROWN ZELLERBACH CORPORATION

## Loyalty to the Small Supplier

SMALL MANUFACTURING CONCERNS have a unique and vital role as suppliers to the bigger mass production industries. A healthy national economy needs both.

Purchasing agents for even the biggest corporations, where requirements are in correspondingly great volume, frequently point out the significantly large share of their business which is placed with smaller companies. It is safe to assume that this policy is not rooted in altruism. Small Business has something special to offer by virtue of its very smallness—particularly in the close personal type of management that becomes increasingly difficult with industrial growth, Small Business earns its place on the supplier list on a sound competitive and value basis.

It is unfortunate that Small Business affairs are often regarded as a political issue. Small Business is neither a natural nor logical political bloc, since in most instances its proper ambition is to get out of that category and become Big Business. It needs and deserves strict anti-trust enforcement and realistic tax schedules, like any other segment of business, to prosper. But to treat Small Business as a marginal group, coddling it with special privilege, solves nothing. Whenever you try to perpetuate marginal enterprise, there's trouble and expense ahead.

If Small Business is an important asset to Big Business, as the evidence clearly shows it to be, it is an asset to be conserved and developed, rather than exploited. That's a job for Purchasing.

One of the things that makes a small supplier a reliable and valuable supplier is the importance of the individual order in relation to total business. That is also his most vulnerable point. With limited capacity, he can't overextend himself in bids and promises without risking deterioration of the service upon which his business success is founded. At the same time, he can't risk losing a customer who represents a large proportion of his total business, merely on some opportunistic buyer's caprice.

What Small Business needs, once its reliability and competitive position have been established, is the understanding, loyalty, and cooperation of its customers—the assurance of continuing orders so long as it remains reliable and competitive, the ability to plan and schedule within its production capacity so as to maintain a high level of service.

Good supplier relations are important in every phase of purchasing. They have a very special meaning in dealing with Small Business.

Stuart F. Henritz



BALL BEARINGS MAKE GOOD PRODUCTS BETTER

NEW DEPARTURE . DIVISION OF GENERAL MOTORS . BRISTOL, CONN.

#### JUNE, 1957 PURCHASING

# highlights



The great politico-economic drama of the century, "Who's Trying to Kill Small Business?" is enjoying quite a revival. Right now Congress is considering two bills—on discriminatory pricing and industrial mergers—which their sponsors say are designed to prevent small busi-

ness from being swallowed up by the giants. And many of the giants are trying to prove that they really are contributing to the prosperity of small business rather than threatening it. PA's are directly concerned with the agood position to know what all the shouting is about. Several hundred answered our current Purchasing Opinion Poll on "What's Happening to Small Business." The highly interesting results appear on page 81.

You'll find more provocative material on the same subject in our legal article, "Discounts, Discrimination and the Robinson-Patman Act" (page 136); and in the editorial, "Loyalty to the Small Supplier" (page 73).

Baffled by all the complex mathematical formulas for controlling inventory that are going the rounds? Afraid that even if you did understand them you'd need electronic machines to apply them effectively? Rest easy, says the author of the article beginning on page 77. He describes a system of Inventory Control "without tears" that has brought his company many advantages—including doubling the rate of turnover.

MRO supplies are something of a step-child when it comes to value analysis. They get a polite nod in many

programs—but most of the enthusiasm is reserved to mass production items. Some organizations, however, aren't in manufacturing—yet have made impressive savings with value analysis. One such program is described on page 130.

A lot of kidding goes on about psychological testing in industry. But the target of most of it is the application—since the basic idea is scientifically sound. Purchasing executives have begun to show an interest in psychological testing as one of the bases for



selecting buyers. It doesn't appear that there will be any great rush to use the tests—but there may be a trend developing. Turn to page 118 for an up-to-theminute discussion on what may become one of your most important tools in personnel selection.

Two simple, but rewarding, techniques for improving purchasing-sales relationships are described in articles on pages 96 and 121.

Too small to have a high-powered program for purchasing improvement, too busy even to make the attempt on a modified scale—that's the complaint of many a medium-sized department. "Just an excuse for ducking your responsibilities" is the answer of a purchasing agent whose own program is covered in an article on page 83. It tells how the department cut costs three ways—through more efficient administration, greater cooperation from suppliers, and the use of a cost reduction specialist.

Watch for July Issue—Full Report on 42nd International Convention and Inform-A-Show of the National Association of Purchasing Agents



#### QUALITY CONTROL REPORT

# These sparks reveal vital facts about quality control of steel

You are naturally interested in the quality of your finished products—and if you use steel in making them, you should know about the Ryerson quality controls symbolized by this spark test.

Here a skilled Ryerson inspector is checking the carbon content of a steel bar by "reading" the sparks thrown off by an abrasive wheel. It's an amazingly accurate method of making sure that you get exactly the steel you order.

And this is only one of many rigid quality controls that protect you in every purchase of steel from Ryerson stocks. For example, a heat symbol identifies every bar of alloy steel to avoid the prob-

lem of variation from heat to heat. Another example: cylinder tubing can be furnished to more accurate inside diameter through Ryerson specs controlling O. D. and I. D. instead of O. D. and wall,

The result: steel of certified quality—assured by exacting Ryerson controls, whether your product calls for carbon, alloy or stainless steels. And these quality controls become *your* quality controls in your finished product.

These are important points to remember when you specify or purchase steel. You get extra value every time you order from your nearby Ryerson plant

## RYERSON STEEL

In stock: Carbon, allay and stainless steel-bars, structurals, plates, sheets, tubing, industrial plastics, machinery & tuals, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK . BOSTON . WALLINGFORD, CONN. . PHILADELPHIA . CHARLOTTE . CINCINNATI CLEVELAND . DETROIT . PITTSBURGH . BUFFALO . CHICAGO . MILWAUKEE . ST. LOUIS . LOS ANGELES . SAN FRANCISCO . SPOKANE . SEATTLE

#### NVENTORY CONTROL is a favorite topic for trade magazines. For the most part, however, articles on this subject fail to give the kind of information a purchasing agent can adapt to his own operations. Usually the systems described are just too involved.

At General Chemical Division we've worked out an inventory control system which we believe shows that it's possible to work up a program that doesn't call for office automation or require the purchasing agent to get a Ph. D. in theoretical mathematics. It's a basically simple system and it's helping us tremendously.

Recently management asked us to prepare a stores program that would improve our inventory position. The problems that we had to solve to make the program ef-

fective were these:

(1) Slow turnover on investment. Despite rapid turnover on much of our stock, we were getting only three turns per year on investment. Management wanted six turns.

(2) Heavy investment in materials bought for specific purposes but not used.

(3) Heavy burden of obsolete and non-moving stock with no practical means of locating it for review and disposal.

(4) Poor system of generating inter-plant use of surplus materials and related

equipment.

To gain a more fluid position we had to face the fact that the cost of writing off surplus materials would be high. Management would be set up to prevent a recurrence of the same situation. We felt that our stores program would offer that assurance.

#### Dispose of 30% of Stock

At every works, a review was made of each item that had not moved in the past 6 months. Result was disposal of over 30% of the material, much of it obsolete. These materials were sold back to vendors, to used equipment dealers, or scrapped outright. How-

# Simple Techniques for Controlling Inventory

A few "do-it-yourself" ideas for maintaining inventory control without having to rely on office automation.

By M. H. Mathewson, Supervisor of Stores General Chemical Div., Allied Chemical & Dye Corp.

ever, the balance still on hand represented nearly a month's supply over the maximum dictated by management.

Analysis of our position at that time indicated that we would have to allocate 35% of the inventory investment to necessary insurance spares and keep the balance of moving items within a 5-weeks' average inventory level.

To accomplish this we replaced our maximum/minimum method of replenishment with one which we call the "Reorder Level System." This system is based on two time factors-the "Control Period" and the "Provisioning Period." The Control Period of replenishment consisting of the usual lead time plus a few days reserve stock. The Provisioning Period is the working supply period, also expressed in weeks. It is the difference between the Control Period and ten weeks' maximum supply. Here we're making use of the old standard "Two-Bin" supply system and we have found that a vast majority of the mathematical formulas are merely an extension of this same basic prin-

We use two simple equations for establishing the Reorder Level and the Purchase Quantity.

The formula for Reorder Level (RL) is A x B x .04 where

A = number of units consumed past six months

B = Control Period

.04 is the factor we determined will give the correct Reorder Level

For example, with an item which has a Control Period of 3 weeks and which is used at the rate of 34 units in 6 months, the formula would read this way:

 $RL = A \times B \times .04$  $RL = 34 \times 3 \times .04$ 

or Reorder Level = 4 units.

Our Purchase Quantity (PQ) formula is A x .4 -Q where

A = number of units consumed past six months.

Q = total units on hand and on order.

The factor we use in the Pur-

w06.	c	ORRE!	PON	DINC	REC	RDE	LEV		10 W	
ONS.	w	hen (	Contr	ol Per	iod i	n We	eks li	1 00	LEV	EL
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11		<u> </u>		1	3	3	4			8
14	1	1	1	2 2	;	1	4	C	1	6
16	+	1	2 2	1		1			S L	7
19	+	2	1	,	:	1	5		3	
20	1	1	:	;	1	5	6	7	1	+
22		2 2	:	:	1		6 7	7	600	10
24	1	1 1	+	:	:	4	7		300	10
30		2	;	-		7	8	:	35	11
21		2		1	6	7	:	10	CONTROL	12
	1	1	:	1		7		10	THO I	19
1	3	3	4	1	7	•	10	11		14
1	16	1	4	:	7	-	10	12	PERIOD	18
-	17	1	*	:	7		11	12		16
	40	1 3	-		:	10	11	18	EXCEROS	16
	41	1:		7 7	-	10	12	19		17
-	44	1		7	9	11	12	14	1 8	18
-	45	1	-	7		11	19	16	N N	19
1	49	1:	-	-	10	12	14	16		20

Fig 1.

Simple equations for establishing reorder level and purchase quantity are already worked out on this printed card (permanently fixed in laminated plastic) used by inventory controllers.

chase Quality formula is .4.

For example, if we assume that we have the exact Reorder Level quantity on hand and on order at time of replenishment, the formula would read this way:

 $PQ = A \times A - Q$   $PQ = 34 \times A - 4$ 

PQ = 9.6 or 10 units to be purchased.

To simplify calculations, we have prepared a "Reorder Level and Purchase Quantity Table," printed on laminated plastic, for use by our inventory controllers. (See fig. 1.)

#### Simplify Stock Records

Our stock records employ a visible index system and the stock card has been redesigned to give more complete information. Movement posting is made on the inner pages. The face page is used to show monthly consumption up to 5 years and a signal calendar system is used for flagging nonmoving stock, on order information, annual inventory data, location, controls, etc. (See fig. 2.)

The lower right bottom of the record card is divided into twelve columns labeled from January through December. The signal flag is transparent; various colors

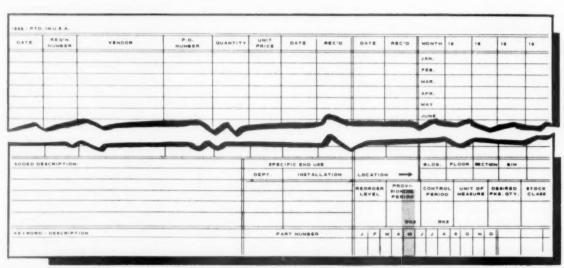


Fig 2. This visible index stock record card was redesigned to give more complete information on control. Its unusual signal calendar system for flagging non-moving stock is fully described in the text.

are used to key the material to department which uses it. The flag is moved to the current month as each issue is made. If no issues are made, the signal remains in its original position. In reviewing the stock cards every 6 months, it's easy to single out the slow-moving items and then determine whether or not to dispose of them.

As part of the over-all system we originated a "New Item Request" form for departments which wanted a new item stocked. Included on the form is information such as the service history of equipment, replacement factor of parts requested, material costs, shutdown penalties, evaluation of possible substitution or repair. We have found that the "New Item Request" form is a helpful guide for determining whether an item should be stocked.

To further reduce inventory, we have established stocks of seldom used but essential spare parts at central storehouses. These stocks can be drawn on by any of the plants as need arises. Stock listings are published in our stores manual. This system of regional warehousing is proving highly effective in reducing the problem of slow-moving stocks.

Certain materials not normally

stocked are sometimes required for specific jobs. Since these are one-time needs, the usual control system is not required. However, we can't give up controls completely so we have set up a program which we call "Obligated Stores."

Five basic services are provided under this program to our maintenance and supply operations:

- Positive control over materials procured for a specific job
- (2) Availability of a complete bill of material when work begins
- (3) Early return of surplus material to vendors
- (4) Reduce clerical workload
- (5) Value of obligated investment is identified in the inventory account.

#### Speeds Identification

The procedure starts when a maintenance request is approved. The shop account number assigned to the request is the index key to all materials procured for the job. Purchase requisitions for all material requirements bear this same account number. Consecutive item numbers are assigned from one requisition to the next. For example, if four items

are contained on the first requisition, the second requisition would carry "item 5" to the first line item. Purchase orders also bear the same item number identification as that which appears on the requisition. This system facilitates rapid identification in purchasing, receiving, storing, identifying on tags, accumulating and issuing.

The "Obligated Stock Card," (8½ x 11 in., punched for 3-ring binders) is marked with the shop account number which serves as the file index. (See fig. 3.) Material item number, description and other pertinent data are posted exactly as shown on the requisition. When received, the materials identification tag shows only the shop account and item numbers. We use a colored tag and brushpen for this purpose. Thus item 3 to shop account C-1483 would be marked as C-1483-3.

At the conclusion of the job, stores is notified that work has been completed. The stock record card is then reviewed. Any material left over from the job that cannot be used immediately is returned to the vendor for a reasonable restocking charge. With this approach we avoid being sad-

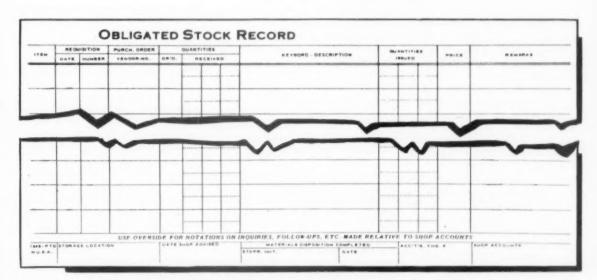


Fig. 3. Information on materials not normally stocked, yet needed for specific jobs or work orders, is recorded on the "Obligated Stock Record," an 8½ x 11 sheet, punched for a three-ring binder.

Michigan (	-05AT-0H				_							951	h. est				
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Bu see.	0.F MQ 0.6;	000000710H AND 8145	MEICE	HOLA	1	2	_	4	-	_	,	_	_	10	11	12	0.611

Fig. 4
A traveling requisition system was set up for general maintenance items with little unit value but heavy movement. In addition to the usual description and vendor information, the form has 12 order columns and columns for fixed reorder level and purchase quantity.

dled by investments in special items that we don't need.

#### **Determine Cost of Possession**

In establishing a simplified inventory control system it is essential to achieve one basic fundamental of the inventory economy—that of balancing cost of acquisition with cost of possession. A little study of costs gives us a fair estimate of the average expense involved in requisitioning, purchasing, receiving and paying for material. Our rate of cost of possession was developed through use of the formula:

$$R = X \sqrt[3]{T}$$

where X = total annual cost of running stores divided by average inventory for the year.

T=Annual supply level

For example, if total annual stores expense is \$440,000 to run an average \$1,000,000 inventory,

then X=.44. If the supply level is two months or six annual turns, then T=1/6. Computing this, you would find that  $R=.44 \times .55$  or 24.2% is the Rate of Cost of Possession for the total inventory investment.

This method does not give a precise rate for each individual item in inventory. Rather, it provides an average rate for all materials in stock. However this is adequate for most purposes.

#### Costs More to Keep It

In our case, we found that acquisition costs were greater than possession costs. Therefore, we had to reduce the number of purchases without increasing average inventory. We did this with a regulated mass replenishment system on various low-value, fastmoving materials. Instead of using the reorder level system, we used a traveling requisition.

We made a complete inventory

and study of items which have low unit value and heavy usage and set up a traveling requisition form that provides for both replenishment control and purchasing authority. In addition to the usual description and vendor information, the form provides twelve order columns together with columns for fixed reorder level and purchase quantity. (See fig. 4.) A 6 weeks' supply is set as reorder level and a 2 months' supply as purchase quantity. These levels can be changed if usage changes significantly.

The reorder level quantity is packaged separately for visual control. Whenever stock reaches reorder level, the stock man places a check mark in the current order period column opposite the item handled on the requisition. Once a month, the requisition is sent to purchasing. A 2 months' supply is ordered for each item with a check mark. There are only four or five basic vendors supplying all this material, so that only a few purchase orders are needed to cover a month's requirements. Previously, we had issued as many as fifty orders a month to obtain this same amount of material.

In setting up the system we selected items of low unit value which also showed a consistent use history each month. The materials were separated into three basic vendor categories. Orders for the materials are in each of the categories placed once each month.

We decided to make a 45-day supply our maximum stock level and a 10-day supply as our emergency order point to prevent stockouts. Each stock record card was color-coded according to its position in the three vendor categories.

On the fifth day of each month, all the cards in category I are pulled and sent to purchasing. The buyer orders the material necessary to bring the balance on hand up to the 45-day maximum stock level. Regardless of whether there is a 10-day or 35-day balance on hand, a purchase is made to bring the stock level up to 45-days' supply.

On the 15th day of each month, the materials in category II are (Please turn to page 342)

# What's Happening to SMALL BUSINESS?

Hearings are being held now in Washington on suggested legislation to aid small business — and in many ways curb the activities of large business. The question of whether such laws are either economically or socially sound is often obscured by emotional arguments. Purchasing agents, whose function is based on sound competition, are probably in the best position to be most objective. Following are the collective opinions of a cross-section of purchasing executives.

 In the past five years, has the number of available suppliers in the small business category declined or increased?

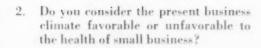




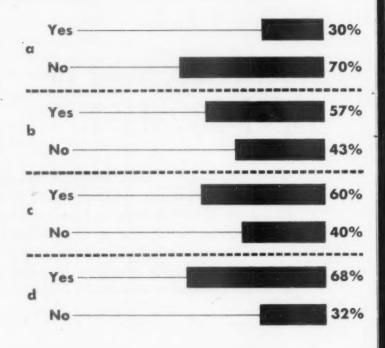
"Favorable" reasons mentioned most often: High business activity, recognition by buyers that small business provides good service and quality.



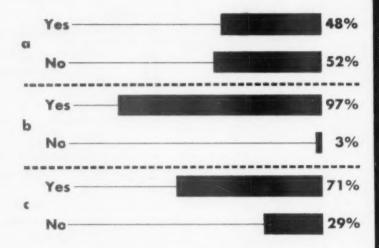
"Unfavorable" reasons mentioned most often: High taxes, tight money, economic superiority of big companies.



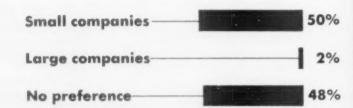
- Do you feel that the Government should give preferential treatment to small business by:
  - a) Awarding a specific number of contracts to small business, even at a price premium?
  - b) Giving small business favorable tax treatment?
  - c) Setting easier borrowing terms?
  - d) Toughening anti-trust law enforcement?



- 4. Do you feel that it is to the long-range self interest of big companies to make special concessions to small business, such as:
  - a) Paying modest price premiums to keep good small suppliers in business?
  - b) Encouraging new small concerns to quote on requirements?
  - c) Making advances to small suppliers under certain circumstances?



5. All other factors being equal, to whom do you prefer to give your business?



# "We Cut Purchasing Costs

3 Ways"

Purolator Products Inc. has only a medium sized purchasing department. But with a sound program of good control and new ideas it has been able to improve its buying and save money. Its successful program includes:

- A cost reduction specialist
- More efficient administration
- Cooperation from suppliers

WHEN YOU know your company is growing, you'd better be sure your purchasing department is growing too. But purchasing growth isn't always a matter of adding more people and more procedures—sometimes it's quite the opposite. Real growth is in keeping your mind open to new ideas while maintaining control on the old ones—staying as flexible as possible so that you're always on top of your job."

This general managerial principle is the basis for a number of new developments in the purchasing operations of Purolator Products, Inc., Rahway, N.J. in recent years. Purchasing Agent John T. Gaffney puts it even more succinctly when he adds, "the changes were made because we have to tighten up and improve all the time if we want to

move ahead in this competitive field."

Purolator has been making automotive filtration equipment since 1923. Its products are used as original or replacement equipment on all types of automobiles, trucks, tractors and airplanes. In industry, adaptations of Purolator filtering systems are found in food, chemical, cosmetic and adhesive plants. In recent years it has steadily expanded sales and aggressively pushed into new markets — particularly with its dry type air filter for cars and trucks

Decisive moves have been made by purchasing in three important areas—inventory control, cost reduction, and administration—to help Purolator maintain and improve its position. They're moves that would improve any buying effort — but they are especially significant when the bulk of your business is done with the volatile automobile industry.

BETTER CONTROL OF IN-VENTORY—About 30,000 different parts and materials have to be kept on hand to go into Purolator Products. Maintaining that kind of inventory on a "peaks and valleys" basis is expensive. You've either got a lot of money tied up in inventory that's just sitting there—or you're paying suppliers overtime premiums to get the stuff in an emergency.

Purolator purchasing is working toward management's goal—"Reduce inventory by X number of dollars"—in cooperation with its own planning group and with its suppliers. Initially, emphasis has been on parts and materials involved in Purolator's replacement business. It's easier to get more accurate sales forecasts on these products. But Gaffney feels that the program can eventually be extended—perhaps in modified form—to almost everything Purolator buys.

The basic idea is to cut forward buying time by about half. Purolator would then be carrying about 50% of the amount of an item it had previously been carrying—and the supplier would stock the rest. The ideal is easily expressed—but it's not always easy to put it into practice.

#### Meetings Pay Off for Purolator

You hear a lot of unrealistic talk about purchasing departments working as a team. But at Purolator it's really true—the nine-man purchasing department does operate as a unit.

One of the big reasons for the one-for-all atmosphere is the regular hour-long meetings that are held once each week. Started two-and-a-half years ago, the meetings were originally planned as problem-solving conferences. This is still their main purpose, but even more important than the problems that have been thrashed out in these give-andtake sessions is the effect they've had in bringing the department together.

Much of Purolator's business is geared to the automotive industry. This means there's a lot of pressure on the purchasing department. The buyers don't find much time for chit chat. In addition, since each buyer is responsible for a specific commodity, there is a natural tendency for each member of the department to get completely wrapped up in his own problems rather than being concerned with the purchasing department on an overall basis.

The purchasing meetings have overcome these obstacles. PA John Gaffney and the other members of his staff agree that the main value of the purchasing meetings has been in developing esprit de corps. The men have gotten to know each other better at these sesions, understand everyone else's problems, and have a clear view of what the department is trying to do on an overall basis.

To make certain the meetings accomplish something, an agenda is worked out ahead of time—usually by Gaffney. Copies of the agenda are distributed in advance so that everyone has a chance to think about the topics being covered before the meeting. Typical of the subjects covered is this agenda from a recent conference: (1) standard costs, (2) Visirecord system, (3) cost reduction and value analysis, (4) expediting and followup, (5) purchasing commitment and inventory, (6) open discussion.

Under Gaffney's chairmanship the meetings move at a fast clip with everyone taking an active part. When necessary, members from other departments are invited to sit in to supply any special information that may be needed. Gaffney has found the meeting idea so worthwhile that he also holds occasional conferences with the purchasing department's clerical staff, and about once every 3 months he calls in buyers from the company's other plants.

In addition to their value in bringing the department together and in solving specific purchasing problems, Gaffney has also found the meetings to be a helpful training device. New men can't help but learn quickly as a result of the free flowing discussions. Gaffney's convinced that the hour devoted to these meetings each week is one of the best investments the purchasing department ever made.

Gaffney has brought approximately a third of his purchases into the program—but only after a series of well-planned meetings with suppliers. Each major supplier has been called in individually to discuss the idea with Gaffney and/or the buyers with whom he deals. Armed with specific figures from the planning group, Gaffney is able to put Purolator's position plainly — we have to save money on inventory; if you can help us you are the one who will get the business.

In addition, the advantages to the vendor are explained: with reasonable assurance that he has a steady customer he can order ahead and tool up without fear of losing his shirt. He can set his machines to run larger quantities and thereby lower his unit costs. He has a more orderly basis for his operations—and his peaks and valleys of production and overtime are leveled off by the reduction in rush orders and slack periods.

Education of suppliers along these lines has been gradual—but in general successful. At least two out of every three vendors have agreed to go along with the plan. They're awarded the business on a quarterly basis—for which Purolator issues a blanket order covering three months' requirements. Deliveries are made at intervals specified when the order is drawn up.

cost reduction—Purolator's buyers cut costs on purchased parts alone by \$96,000 last year. They hope to boost that figure substantially by the end of 1957. Cost reduction through analytical buying is not new to Purolator—but something new has been added in the past couple of years to put it on a more organized and effective basis.

The "something new" is a staff member officially titled Technical Assistant. And his method of operation holds a significant lesson for those purchasing executives who feel their department is too small to warrant a full time value analyst, or equivalent. (Purolator's annual purchases run to about \$14 million.)

Broadly, the duties of Purolator's technical assistant for purchasing—Joseph Kontra—are: to bring in new products that will help Purolator; take cost out of old products; investigate anything that will improve Purolator quality for the same or lower cost. In addition he buys capital equipment, and acts as liaison for Purolator's engineering and research and development departments in outside contacts on purchased items.

Kontra—who holds a B.S. from Rutgers and spent several years in production and sales in the tool and die field—spends about half his time with buyers and vendors' representatives. It's his job to keep the buyers informed on what Purolator engineers are looking for in new materials, new processes, substitutions, etc. Thus alerted, the buyers can tap vendors for new ideas and suggestions.

When a "hot" idea develops from a buyer-vendor discussion, Kontra is called in to carry it through the next phases. This may involve additional discussions with the vendor, consultations with Purolator's engineering or laboratory personnel, or visits to the vendor's plant.

In a typical situation, a vendor may come up with an idea involving a new material. If the buyer thinks it has some merit, he fills out an Engineering Test Request (see illustration). Requests are sent to engineering through Kontra, who then has the responsibility for following them up. A sample of the new material is sent along with the form. Engineering returns a copy of the form to Kontra, with comments. If these are favorable, Kontra takes the material to the testing laboratory for full analysis. From that point on, the "idea" becomes a cost reduction project subject to the approval of the company-wide Cost Reduction Committee, of which Kontra is a member. Once a change has been approved, the buyer handles all negotiation from there on.

#### Buyers Free to Suggest Changes

Although they buy to blueprint specifications, Purolator buyers are given latitude in putting forth their own ideas on changes, relaxation of tolerances, etc. where



Mr. Gaffney and his buying group at one of their weekly meetings.

they think such moves would help Purolator.

When a buyer feels that such a change should be made, he submits a request to engineering through Kontra, who then has responsibility for follow up. Separate forms are used for changes that will be permanent and for temporary deviations from specifications or drawings.

Gaffney is getting suppliers more and more into the cost reduction act. He is now working on a program of monthly meetings with major suppliers, with buyers, methods engineering representatives, R&D personnel, and other interested people sitting down for round-table discussions with the vendor. Meetings of this type held with paper suppliers have already proved fruitful. New materials have been discussed and a number of cost reduction ideas have been generated. One paper item under discussion now may save Purolator many thousands a year.

"This cost reduction activity can cover a lot of ground" Gaffney says. "So one of the most

Henry W. Ruckwied, Purolator's assistant purchasing agent, discusses a new manual of operating procedures with Mr. Gaffney.



#### Forms Used in Purolator's Cost Reduction Program . . .



important things is to make sure it's a cooperative effort. We try to keep everybody informed of what's going on and get engineering approval on all changes clearing through purchasing. We work as a group—yet every buyer gets credit for his own ideas. Specific accomplishments get due notice —by name and amount of cost reduction — in our quarterly reports to managament."

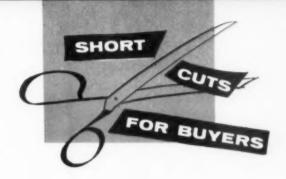
EFFICIENT ADMINISTRA-TION — Simplification of paperwork and administration isn't neglected for the more dramatic aspects of cost reduction.

The long range plan to get as many purchased items as possible on a 3-month or 6-month blanket order basis is only one of the means by which Purolator is trying to find "an easier way." A recent change in filing methods has enabled purchasing to keep records of 30,000 separate parts in a desk 10 feet square. This is double the number of purchase record cards previously kept in a space twice as large. And the new arrangement gives fingertip control—any card can be reached in a second. Under the old system the clerk often had to go down the length of the files to get a card.

Gaffney has also revised stenographic and clerical duties in his department to get more effective performance. Previously, individual girls specialized in one function—preparing orders, for example. Now buyers and stenogra-

phers are organized in teams—usually with one girl to two buyers. (Buyers with unusual workloads are assigned one girl exclusively.) Under the team arrangement, stenographers are able to relieve the buyer of a great amount of detail (e.g., maintenance of Summary of Quotation files). They also take over a certain amount of telephoning and routine follow-up.

"All our efforts are aimed at making our jobs simpler and more rewarding," according to Gaffney. "I think we're getting there—and I attribute what success we've had to three things—good controls, new ideas, and a cooperative attitude on the part of everyone, in and out of our department."



# 3-Man Department Uses Special Buying Methods

Unique order form, "desk-top" follow-up, and twoway communication enable a small group to process 9,000 orders a year for \$5 million in supplies.

 $\Gamma$  HERE aren't any "greenhorns" in purchasing at the Ohio Brass Company's Mansfield, Ohio plant. All the buying is done by Purchasing Agent Harold A. Bruce and his two assistants, W. C. Upson and V. S. Smeltzer. These three men have a combined seniority of 72 years. With this much combined experience, a visitor could logically expect to find a smoothly functioning purchasing operation at Ohio Brass. He wouldn't be disappointed. Conventional purchasing practices are blended with special procedures tailored specifically to the company's products and organization.

Ohio Brass makes a wide variety of products at its three plants. Its catalogs list thousands of different porcelain insulators, transformer bushings, hardware for public utilities, electrified railways, trolley coaches, street cars and mine haulage ways, and bronze valves for industry. In addition, the company does a good business in "made-to-order" components. Such a broad product line means widely diversified purchases. It also means plenty of purchasing paperwork. At Ohio Brass, the three key buyers place about 9,000 orders annually with a total value of about \$5 million.

Thus, purchasing at Ohio Brass must process many orders of relatively small dollar value and get prompt delivery against them. Its procedures are designed to do just that. Particularly useful are:

• A unique purchase order form that is both easy to type and easy to handle.

• A flexible "desk top" follow-up system that permits the buyer to spot trouble while there's still time to do something about it.

 A system of "two-way" communication between the shop and purchasing that keeps both groups informed with a minimum of effort.

#### Card-File Size Orders

Ohio Brass uses a five-part continuous-type purchase order form that measures just 5" x 8". The small size permits copies of the order to be kept in desk-top card files. It also helps speed typing since the typewriter platen need be advanced only about half as many spaces (as compared with 8½" x 11" continuous type forms) to get to the next order.

Minimum Number of Copies. Copies of the order go to the vendor, receiving, and cost. Two copies stay in purchasing. The company limits the number of purchase order copies to five by routing the receiving copy through production and the cost copy through traffic. This keeps production and traffic informed about each purchase without creating the additional expense of making copies for them, which they really don't need.

Purchasing Keeps Card Files. One of purchasing copies of the order goes to the buyer. He uses it for follow-up while the order is open. When the order is closed, this copy is filed numerically for

#### Basic Forms in the Ohio Brass System

future reference. The other purchasing copy is made of extra heavy stock so that it will stand up in a file and take a lot of handling. It's used for checking invoices and receiving reports. This copy is filed by the vendor. Receiving reports and invoices are kept in separate files until both documents are in for any given order. Then purchasing checks them against the order, approves the invoice, and forwards it to accounting for payment.

"King-Sized" Orders Also Used. Whenever possible, purchasing trys to put a number of items on the same order to keep down paperwork. Sometimes there are so many items that the 5" x 8" form is too small, so purchasing then uses a 10" x 8" form. This form looks just like the smaller one except that it permits a greater number of items to be listed. It's exactly twice the size of the standard form. When it's folded in half, it will fit into a card file along with the standard forms. Purchasing gets the benefit of listing a number of items on an order without losing the convenience of a card-file size order.



Ohio Brass Purchasing Agent, Harold Bruce, believes in giving buyers authority to do a complete buying job. Each buyer is free to use the system that he feels will

work best for buying and following the commodities he handles. For this reason, there isn't a completely uniform system of follow-up at Ohio Brass, but the systems used by each buyer are quite similar. Typical is that used by Mr. Bruce himself. Mr. Bruce files follow-up copies of orders in three different sections of a card file he keeps on his desk.

Desk Top Follow-up. Orders first go into an "unacknowledged" section where they're filed by vendor. When the vendor acknowledges the order and gives his delivery promise, they're transferred to another section where they're filed by the month in which delivery is scheduled. If the vendor doesn't meet his delivery promise, they're then transferred to a "Past Due" section of the file. This breakdown makes follow-up easy. First, Mr. Bruce checks through the past due or-

Purchasing Agent H. A. Bruce is one of a group of three buying specialists at Ohio Brass with a combined procurement experience of 72 years. The other two are his assistants, W. C. Upson and V. S. Smeltzer.



B DESCRIPTION	DELIVERY	REQUIREM	MENTS	Cet Ox Pet
F. O	QUANTITY REQUIRED		DATE REQUIRE	0
WILL BE SHIPPED		REPLY		Date
Force MG-12 To			-	

This notice of change in requirements—or deliveries—is originated either by the shop or by purchasing.

ders in the file. They naturally get the most attention. Then he can easily go through the other two sections of the file for a routine check which is designed to anticipate trouble.

Checking the Details. The check of the follow-up copies of the order can't, of course, provide Mr. Bruce with all necessary information about the order. It's inherently a superficial investigation. More details are needed for an actual follow-up. To get them, he uses a simple system. Acknowledgments and all correspondence pertaining to an order go into a manila folder that his secretary files. Attached to the folder is a "call up" on which Mr. Bruce notes the date that the folder should be pulled from file and put on his desk for review. With this dual system of control it's hard to miss an order that needs attention. Yet it takes a relatively small part of the buyer's time.

As in any plant, schedules at Ohio Brass change and deliveries of purchased materials must be stepped up or slowed down. Also, vendors are sometimes not able to deliver as promptly as manufacturing would sometimes like them to. Sometimes they can be (and are) solved with a phone call, but there also must be some written communication. Ohio Brass saves time with a three-part "Delivery Requirements" form designed especially for this purpose. It is originated either by the shop or by purchasing.

The originator indicates the information he needs on the form and forwards two copies to the department from which it wants an answer. The reply is noted on the copies. One is kept by the recipient of the request; the other is returned to the originator. As a result, both of the interested departments wind up with a completely filled-in copy for their files. This is a timesaver compared with the customary practice of exchanging typewritten memos. Maximum use of such timesavers is what makes it possible for three men to buy and follow the tremendous number of different purchased items needed for a product line as broad as that of Ohio Brass.

Desk-top follow-up file is easily broken down into sections indicating status of order. This provides a quick check—more complete details are obtained from manila folders carrying all correspondence relating to orders.





# Expediting System Keeps

"We can't afford a slip-up" says DeLaval's Ed Schwarz. "That's why we put so much stress on thorough expediting. Production bar charts indicate vendor progress on orders.

V ENDORS doing business with De Laval Steam Turbine Co., Trenton, N. J., know that they have to deliver on time. The company's highly effective expediting program makes it extremely difficult for a supplier to miss a deadline.

There's a good reason for the stress De Laval's Purchasing Agent Ed Schwarz puts on expediting. It's the nature of the company's operations. Much of

De Laval's \$30 million yearly sales volume consists of special orders for highly engineered products built to customer specs. To fill these orders, DeLaval buys a large volume of forgings, castings and weldments. In most cases, delay in delivery of these parts would completely halt De Laval's work on specific job and might mean that the company would miss its shipment date. That's why expediting is perhaps more im-

portant for De Laval than it is most companies.

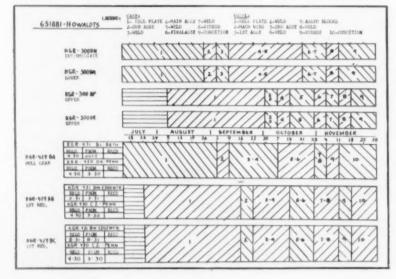
Backbone of the company's expediting program is its three outside expediters who are on the road almost as much as the salesmen. On important jobs the expediters call on vendors at least once a week. For really critical work, vendors may be checked up to three times a week.

In addition to its three traveling expediters, De Laval uses a device which PA Schwarz says is making its expediting more effective than ever. For the last few months, whenever a De Laval expediter makes a call on a vendor, he comes armed with a production bar chart which the vendor has to fill in to show how much work has been accomplished since the expediter's last visit.

Here's how the bar chart system works: After a vendor has been picked to do a job for De Laval, the first step is to have the purchasing department and the vendor's production department work out a production schedule. Starting with the desired delivery date and working back, deadlines are set for each phase of the vendor's production operations.

From these deadlines a bar chart is made (see illustration) showing how much work the vendor should have completed by certain dates. In making his regular calls, the expediter asks the vendor to fill in the chart up to the

Typical production bar chart used to keep track of vendor progress on a specific job. The job is broken down to its main operations and deadlines are established for each phase of the work. When expediters call on a vendor they bring the bar chart and have the vendor fill it in to the point representing the amount of work completed.



## Close Tabs on Vendors



For De Laval Purchasing Agent Ed Schwarz, efficient expediting is a must. He knows how to get what he wants when he wants it.

By Ned Kellogg

point representing the amount of work that has been finished.

The bar chart system is definitely proving itself, says Schwarz. Expediters now have a much better idea of how the work stands and the charts also serve to put additional pressure on the vendor to keep production on schedule. Another advantage: when a slowup develops, it's spotted immediately before there's a serious time loss. If there's real trouble, Schwarz moves in and goes over the problem with the vendor's top brass to see what can be done. Sometimes, when serious delivery problems arise the order is cancelled and placed with another source.

Schwarz admits that a few vendors grumble about being checked so closely. However, he says most of them know how essential ontime deliveries are for De Laval and go along with the bar chart program quite willingly. Some even concede that the bar charts help by forcing them to keep on schedule. In a sense it's like having DeLaval doing the production planning and production control for the vendor.

There's another benefit from the bar chart program. In the discussion stage, when the production schedule is being worked out, many problems come up that can be settled immediately — before the vendor gets into production. And sometimes in going over a



Short PO form is used when only a few items are being purchased. Every request for quotations that goes out asks the vendor for suggestions.



Picking vendors' brains for cost cutting ideas is an Ed Schwarz specialty. Here he talks with salesmen from the Heppenstall Co.



With on-time deliveries so vital to De Laval, purchasing frequently becomes a high pressure operation for the department's thirty-one employees.

vendor's proposed method of operation, De Laval purchasing or engineering people are able to make suggestions on how the vendor can handle the job more efficiently.

#### **Keeping the Boss Posted**

Schwarz also finds that the bar charts help him keep his boss (vice president - manufacturing) posted. The purchasing department has a copy of the expediter's bar charts and Schwarz uses them to give his boss a quick picture of how the work is progressing.

Sometimes the bar charts are even used to satisfy De Laval customers that vendors are producing on schedule. For example, if an expediter from one of De Laval's customers wants to find out how the work is going, the purchasing department can pull out the bar charts and show him exactly how the job stands. This saves the customer's expediter from having to make his own check on De Laval's vendors. In this way the purchasing department plays an important part in improving customer relations.

Of course De Laval's effective expediting program isn't used on every nut and bolt order that's placed. Generally each of the three expediters concentrates on about 20 vendors who are supplying "must" items—forgings, castings, weldments and finished items such as coolers and special valves.

Problems on the less critical items are handled by the four-man inside expediting group. In all, the De Laval purchasing department (31 people) processes about 120 purchase orders a day. Yearly purchases run around \$12 million and amount to 40-45% of dollar sales volume.

#### Mechanize Vendor Ratings

Expediting isn't the only phase of purchasing that gets a lot of attention at De Laval, however. Innovations are being made constantly. Recently the department decided to use IBM tabulating equipment to work up vendor ratings. As a result, it's now possible for purchasing to get a quick report showing the amount of business the company placed with a vendor, how often the vendor was late on deliveries, and how rejects or rework on defective material is running. (A separate article on De Laval's policies on handling rework will appear in a future issue.)

Ed Schwarz has also put through a concentrated program to get as much constructive help from vendors as possible. Last year this program really paid off. Schwarz says that mainly from cost cutting suggestions offered by vendors, the purchasing department saved \$240,000.

The saving was made possible from many ideas on how to save a little rather than from a few ideas on how to save a lot. "Some of the vendors even came up with suggestions that would have cost us more if we'd used them," says Assistant Purchasing Agent Jack Burgner. "But for the most part they gave us a lot of very valuable help."

Typical of the kind of assistance De Laval received was a vendor suggestion on a casting pattern change. The change required an added expense, but it cut the cost of the castings 25%. Other vendor suggestions put the finger on overdesigned weldments, cases where engineers had specified heavier forgings than were necessary, and savings that could be made by changing order quantities. Multiple pattern equipment also cut castings costs.

As part of the program to get as much cooperation from vendors as possible, every request for quotations carries this reminder: "Your comments on design improvement and ordering quantities to effect cost reduction are solicited."

What's most impressive about De Laval's purchasing department, however, is its openminded, progressive approach to purchasing. Even more important than its sound expediting program and its substantial cost reductions is Ed Schwarz's continual interest in finding a better way. He usually does.

# How to Analyze

# Capital Equipment Purchases

By James Brian Quinn

Assistant Professor of Marketing, University of Connecticut

HOW OFTEN are you faced with these questions? Should I pay more for item A because it saves money in the long run or should I buy item B with a lower initial outlay, but a higher operating cost over its life? Should I recommend the purchase of equipment to make this part or should I buy the part outside? Would it be worthwhile to consider replacing present equipment with newer, cost saving equipment?

A generally applicable approach to these problems was presented to and discussed by over 150 purchasing people in recent sessions of the NAPA District 9 advanced educational program currently being offered in New England. Some points were developed which seemed of general interest to purchasing personnel. These points are summarized below.

#### A General Method of Analysis

There are two major facets to capital equipment analysis: (1) the cost and return factors, and (2) the intangible factors. The analysis is greatly simplified if these two facets are separated at the outset. Cost and return factors should be considered first. If the cost analysis appears favorable, one should check to insure that there are no intangible factors which override the financial considerations. If the financial factors are unfavorable, the intangibles should be analyzed to insure that there are not overwhelming considerations which necessitate the investment regardless of unfavorable financial aspects.

Some large concerns utilize special capital equipment formulas derived by the engineering and finance groups of the concern. Other concerns use the M.A.P.I. formula as a standard method of equipment analysis.\* Of the over 100 concerns represented in the Advanced Course, only three reported use of either system. Most concerns apparently rely on special analyses and "rules of thumb" in making financial analyses of capital equipment.

The following, therefore, sets forth a simple and organized method of attacking the cost questions in capital equipment analysis. The system is designed to be of assistance to the purchasing man (perhaps unskilled in mathematical or accounting techniques) (1) in solving his everyday problems, and (2) in contributing to general management discussions of proposed capital equipment expenditures.

There are several generally applicable indicators of the financial advisability of investing in capital facilities. Let us illustrate, by a simple example, the analysis of cost factors leading to the computation of these indicators.

First, the average annual cost of producing the part or service using each possible alternative capital facility should be prepared in tabular form as in Exhibit I. The analyst will find that using average annual cost figures of the intended rate of production will facilitate the preparation of the

table and simplify later computations.

#### Computation of Financial Indicators

The following six indicators should normally be computed for each major capital equipment analysis: (1) annual cash savings, (2) cash payback period, (3) annual savings, (4) unit cost savings, (5) annual return, and (6) return on investment. Using the figures from Exhibit I, the computation of these indicators is illustrated below. The definition and significance of each indicator is presented with its computation.

(1) Annual Cash Savings is the estimated net annual addition to cash caused by taking the indicated capital equipment option. (See line 5 of Exhibit I). Equipment A will improve the cash position of the company by an average of \$20,000 per year as opposed to operating with present equipment, while equipment B would enhance the cash position by only \$10,000 relative to the present operating method. Annual Cash Savings measures the impact of the investment on the cash position of the concern relative to some alternative method of performing the same operation.

(2) Cash Payback Period measures the length of time it will take to recoup the net new cash investment through annual cash savings, i.e., how long it will take the new equipment to repay the investor the cash he put into the equipment. This factor is extremely important when the cash position of the concern is tight.

<sup>&</sup>quot;M.A.P.I. Replacement Manual", Machinery and Allied Products Institute, Chicago, 1950.

#### Exhibit I

#### Cost of Producing the Product or Service Being Analyzed Average Annual Operating Costs Using Each Proposed Capital Facility

	Direct Costs	I Using Present Equipment	II Using New Equipment	
1.	Labor	\$30,000	\$10,000	\$10,000
2.	Materials	15,000	15,000	15,000
3.	Other Direct Costs	5,000	5,000	15,000
4.	Total Direct Costs	\$50,000	\$30,000	\$40,000 ←(a)
5.	ANNUAL CASH SAV	INGS \$2	20,000	\$10,0002
6.	Depreciation on			
	Equipment	5,000	10,000	4,000 ←(b)
7.	Subtotal	\$55,000	\$40,000	\$44,000
8.	ANNUAL SAVINGS	\$1	15,0001	\$11,0002
9.	Allocated Overhead (100% of line 1 in this example)	30,000	10,000	10,000 ←(c)
10.	Total Cost	\$85,000	\$50,000	\$54,000
11.	ANNUAL RETURN	\$:	35,0001	\$31,000 <sup>2</sup>
12.	Total Units to be			
	Produced	100,000	100,000	100,000 ←(d)

- Column I less Column II
- Column I less Column III

#### **Investment Information**

		Using New Equipment A	Using New Equipment B
13.	Net New Cash Investment	\$50,000	\$20,000 ←(e

- 14. Net Additional Commitment to the Process (for Capital Facilities Already Owned.)
- 15. Total New Investment in the

- 10,000  $20,000 \leftarrow (f)$ \$60,000 \$40,000

Notes (a)

All actual cost directly related to the operation and requiring annual cash outlay should be included in this section, but no allocated or imputed costs should be included. Income Taxes on savings should be excluded.

(b) Depreciation should be charged only on equipment in use. The best estimate of actual equipment life should be used rather than traditional or Government figures. The unamortized cost of old equipment should not be charged to the new equipment.

(c) The best estimate of the actual overhead cost of the operation should be used. This may require reconsideration of the overhead base (i.e., labor or space) & the allocation percentage. (d)

The actual number of units which are to be handled by the new process should be included, not the capacity of the machine unless it is to be used to full capacity.

(e) All cash investment (parts, tools, and materials inventories; all cost of the equipment, its delivery, installation etc.) should be included. The cash investment in new equipment should be considered as the net outlay after deducting the scrap or trade-in value of replaced equipment.

If presently idle capital equipment or more space is required for the operation, the estimated value of this investment should be included here.

It is computed simply by taking the ratio of net new cash investment (line 13 of Exhibit I) to annual cash savings (line 5). Thus:

$$\frac{\$50,000}{\$20,000} = 2\frac{1}{2}$$
 years

For Equipment B:

$$\frac{\$20,000}{\$10,000} = 2 \text{ years}$$

The acceptable cash payback period will vary with the risk of the investment. If the investment is high risk (such as in a field of rapid technological obsolescence) a cash payback period of one year

or less is frequently required. Middle-risk or normal risk situations require only a 3-year or less payback period. In stable or low risk situations (standard machine shop items or public utilities' facilities) a cash payback period of 5 years or more may be acceptable.

Note that all payback periods

#### Exhibit II Summary of Cost Analysis

	Equipment A	Equipment B
Annual Cash Savings	\$20,000	\$10,000
Cash Payback Period	21/2 years	2 years
Annual Savings	\$15,000	\$11,000
Unit Cost Savings	15 cents	11 cents
Annual Return	\$35,000	\$31,000
Return on Investment		
Method 1	58.4%	77.5%
Method 2	30.0%	55.0%

## Exhibit III Comparative Cost and Investment A vs. B

	1	I Equipment A	*	II Equipment B*
21. 22.	Total Direct Costs Annual Cash Savings using A	\$30,000	\$10,000#	\$40,000
23.	Depreciation on Equipment	10,000		4,000
24.	Subtotal	\$40,000		\$44,000
25.	Annual Savings using A		4,000#	
26.	Allocated Overhead	10,000		10,000
27.	Total Cost	\$50,000		\$54,000
28.	Annual Return using A	***************************************	4,000#	
	Inv	restment Info	ormation	
29. 30.	Net New Cash Investment Net Additional Cash Required for	\$50,000 A	\$30,000#	\$20,000
31.	Net Additional Commitment to the Process (for Facilities Already Owned)	10,000		20,000
32.	Total New Investment in the Proce	_		\$40,000
33.	Total Additional Investment Require	-		
00.	for A	eu	\$20,000#	
34.	Total Units to be Produced	100,000		100,000
*Fo	r detailed figures see Exhibit I			

\*For detailed figures see Exhibit I. #Column II less Column I.

Analysis of cost figures would derive the following indicators of the advisability of purchasing A rather than B.

- (1) Annual Cash Savings using A (line 22) = \$10,000
- (2) Cash Payback Period =

  Net Additional Cash Required for A (line 30) \$30,000 = 3 yrs

  Annual Cash Savings using A (line 22) \$10,000
- (3) Annual Savings using A (line 25) = \$4,000.
- (4) Unit Cost Savings =  $\frac{\text{Annual Savings using A (line 25)}}{\text{Total Units to be Produced (line 34)}} = 4 \epsilon \text{ per unit}$
- (5) Annual Return using A (line 28) = \$4,000.
- (6) Return on Investment

#### Method 1:

Annual Return using A (lin	e 28) .	\$4,000	= 20%
Total Additional Investment	Required for A (line 33)	\$20,000	= 20%

#### Method 2:

Ar	nual Saving	s usin	g A (line	25)		\$4,000	= 13.3%
Ne	et Additional	Cash	Required	for A	(line 30)	830,000	10.0%

and acceptable standards are here stated "before taxes". This handling eliminates some complexities of computation which might otherwise arise.

The cash payback period should always be checked against the expected life of the equipment. If the cash payback period is longer than expected equipment life, the investment will normally be rejected. Only strong intangibles (such as personnel safety, quality demand, legal requirements, defense necessities, etc.) can justify equipment expenditures when cash payback period exceeds expected use life.

(3) Annual Savings measures the impact of the investment on the profit and loss statement of the concern. Annual savings is the amount by which net profit before taxes will be increased if the indicated equipment is used. In the present example Equipment A will save \$15,000 per year, while Equipment B will save only \$11,-000 per year, including in both cases the depreciation cost of the equipment itself. (See line 8 of Exhibit I.) It should be apparent that the total of all annual savings figures over the life of the equipment must exceed the equipment cost in order for the investment to be at all acceptable (without the presence of overwhelming intangible factors).

For equipment used in operations not subject to space charges (such as automobiles and trucks, certain classes of office equipment, etc.) Annual savings will represent the long-run total annual cost savings of using that piece of equipment.

(4) Unit Cost Savings measures the net unit cost saving which will be induced in the finished part or product as a result of the proposed equipment investment. The actual number of units of planned production (line 12 of Exhibit I) should be used in calculating unit cost savings rather than the machine's total capacity, which might or might not be fully utilized. If the machine has excess capacity, this may be considered later as an intangible, offering possible production flexibility as a result of the purchase.

(Please turn to page 304)



A corner of the Westinghouse reception room in Columbus, Ohio

Unique time-card technique cuts salesmen's waiting time at Westinghouse plant

## No Cool Heels In This

N THE last few weeks over a thousand salesmen called at the Westinghouse electric appliance plant in Columbus, Ohio. Fewer than 35 of them had to wait over an hour to see the buyers they were calling on.

That kind of a record is pretty good for any purchasing department. In a plant where eight buyers every week purchase a million dollars worth of materials in 30 classifications, it's remarkable.

It wasn't always this way. Up until last November, the Columbus plant reception room was like those of a lot of other very busy companies. Too many frustrated salesmen were cooling their heels too long. Westinghouse decided to do something about it and found the answer in a simple IBM time clock.

Now, as each visitor signs the register, he is given a 3"x5" card on which the receptionist has stamped his time of arrival. The receptionist calls the buyer he wants to see, and the salesman begins his wait. If the buyer doesn't call back in 20 minutes, the receptionist gives him another call. When the purchasing agent indicates he's ready for interview-

ing, the salesman leaves his card at the desk, where it's punched again in the time clock.

At the end of each day, all cards are turned over to Purchasing Agent Harry Johnson. He picks out those that indicate an unreasonably long waiting time and reviews them with the buyers involved. On occasion, Johnson will write a letter of apology to a salesman and suggest that he stop at his office on the next call.

In the first month the plan was in operation, 8% of the people calling at Columbus waited more than an hour to see buyers. The



A salesman signs in . . .

Receives a card stamped with his arrival time . . .



Returns the card and is greeted by the buyer . . .



# Reception Room

following month it dropped to 6%. Last month it dropped by half to 3%.

"We expect the rate to stay in that general area" says Johnson. "We can't expect much improvement because buying hours are limited from 10 a.m. to noon, and from 1:30 p.m. to 3 p.m. With 50 salesmen a day calling on nine buyers, it's impossible to eliminate waiting time completely. Of course, many will call on appointment and are not restricted to those hours. And the enforcement of hours is not extended to new salesmen making their first call.



Goes into conference with the buyer.



W. D. Bailey

# Purchasing for the

PURCHASING at Rocketdyne, A Division of North American Aviation, Inc., spends more than \$60,000,000 yearly. It buys all materials and services needed to design, develop, and manufacture large liquid-propellant rocket engines for most of the major missiles now being made for the United States' armed forces.

We have two widely-separated plants (one a production facility at Neosho, Mo., and the other a research and development center at Canoga Park, Calif.) Our procurement work at Rocketdyne is completely independent of related activities in other divisions of North American Aviation. We establish our own bills of material, purchase needed items, receive delivered merchandise, and issue products as they are required by other Rocketdyne departments on the basis of our own predetermined schedules. We are subject to the overall policies of our general offices.

We have in our California

plant 34 buyers and 5 buying group leaders who are generally responsible for the issuance of more than 80,000 purchase orders (with an estimated average of value of \$988 per order). To supplement the efforts of such buying personnel, we have almost 300 purchasing employees whose responsibilities include:

(a) Establishing general policies and procedures in connection with material procurement opera-

(b) Determining material requirements from information furnished by planning, engineering, and other departments.

(c) Determining dependability of manufacturers and suppliers from the standpoint of experience, financial standing, and competition.

(d) Maintaining adequate follow-up of all commitments, to assure delivery in accordance with established schedules.

(e) Negotiating and settling supplier claims resulting from changes in or the cancellation or reduction of outstanding commitments.

(f) Making recommendations

4

Receptionists at Rocketdyne's material building in Canoga Park, Calif. check in a subcontractor and assign him a badge before his interview with a buyer.



# **Guided Missile Program**

By W. D. Bailey, Director of Material, Rocketdyne, A Division of North American Aviation, Inc.

for scheduling and pricing of new projects predicted on availability of materials and equipment.

(g) Recommending material substitutions to relieve shortages.

(h) Processing and submitting approved delivery orders or "requisitions" to the warehouse for release of all productive materials except government - furnished

(i) Arranging for return of unsatisfactory materials to suppliers and authorizing disposition of surplus materials and equipment on hand in warehouses.

(j) Maintaining blueprint files, purchase order recapitulation records, material allocation and priority records, and other related purchasing department sta-

(k) Maintaining satisfactory relations with suppliers in accordance with corporation policies.

Our material division also includes a warehousing department with about 150 workers. We have a traffic department with 50 employees.

found that it can usually be solved in several different ways. Where a specialized machine operation or service is required, we consult one of our outside contact men who is qualified to locate required sources through many contacts in his particular field. Then the contact man becomes a member of a small group who evaluate potential vendors in these terms: reputation, credit rating, financial structure, facilities, organizational structure, equipment for production and inspection, quality control procedures, engineering talent and experience, etc.

Once qualified to perform work required by Rocketdyne, a vendor receives our invitation to bid form. This is accompanied by all necessary specifications, drawings, or other data.

Once a vendor is selected, a purchase order is issued as fol-

(a) The buyer assigns an order number and completes required (Please turn to page 320)

Locating prospective suppliers is one of our more important procurement problems, and we have

Buyers and other purchasing personnel in Canoga Park are located in an air - conditioned square foot office area. Each buyer has his own cubicle providing privacy for interviews with suppliers.



# Clear Specifications Help User, Buyer, Vendor

Rejects were lowered, manufacturing efficiency improved when a purchasing department replaced "playing by ear" with accurate, informative material descriptions



Quality control would reject material and the vendor would complain that he had never been told a certain quality or tolerance was desired.

F ACED with today's swift technological progress and stiff competition, purchasing agents can no longer afford to "play by ear." Unless they know precisely what they are buying—and are sure vendors know precisely what they want—they are leaving the door open to trouble. Vague or sloppy product descriptions tend to invite irregular quality, poor service, and hidden cost increases in as more or less permanent guests.

A long-range program of specification clarification is one important step being taken by a well known pharmaceutical firm to meet this problem. The director of purchases has successfully carried out a campaign of specification education among using departments, buyers and vendors. As a result, all have benefited. And the company has taken another step forward in maintaining its position in a highly competitive industry. There is better competition among suppliers, fewer

production problems, and more efficient purchasing.

"In this busniess we have to work harder for every dollar of profit" says the director of purchases, who came from production control to head up purchasing. "If everyone involved in the production cycle knows exactly what is needed, what is being bought, and what is being sold, we're all better off."

The specifications program began as an evolutionary process a couple of years ago. As problems came up on the production line, or with vendors, purchasing people would try to pinpoint the trouble. They began to realize that much of the difficulty lay in misunderstandings between their own production people and their vendors.

In some cases, it appeared, the company was assuming too much knowledge on the part of suppliers as to exactly what was wanted. In other cases, vendors were consciously or unconsciously taking advantage of too general specifications to ship offquality materials. There were situations in which quality control would reject material and the vendor would complain that he had never been told a certain quality or tolerance was desired. There seemed to be no common ground of understanding each other's ideas, processes and problems. And the rejection rate continued to rise.

Purchasing decided to put its specification program on an organized basis. It began to educate operating personnel to the desirability of spelling everything out to suppliers. Standard company specifications that had long existed but had not been widely circulated, were brought up to date and broadly distributed. Regular meetings were held with the specification committee, and with production and quality control personnel to clarify existing specifications and prepare new ones where necessary. Suppliers' technical people were asked to sit in on meetings and consultations to offer their views and suggestions.

Attention naturally centered on raw materials and packaging, which make up the great bulk of the firm's purchases.

One of the notable improvements was made in the purchase of collapsible tubes. The company buys approximately 1500 different packaging items, and about 50 varieties of collapsible tubes. Purchasing worked closely with the package development section, a special group with broad responsibility for packaging decisions, and with quality control and production people on clear, standard specifications.

The firm had always used suppliers' drawings in buying these tubes. Consequently, little "gimmicks" or special designs of individual vendors crept into the manufacture of tubes. Instead of buying a standard tube from a number of suppliers, the company was, in effect, buying a large number of specials.

Now, in line with the specifications program, the company supplies its own drawings for the tubes and buys strictly according to their details. Acceptable quality levels for tubes have been worked out and made clear to vendors.

#### Reciprocal Visits Arranged

Vendor participation in the specifications program has gone beyond the consultative stage. Because purchasing feels strongly that knowing the other fellow's program is a two-way street, it has pushed a program of reciprocal visits. It has sponsored a visiting policy that encourages operating personnel to regularly visit major suppliers' plants, and vice versa.

Recently, for example, there had been some complaint from the production department on bottles. Through a visit to the vendor's plant, production executives learned the supplier's own problems in production, and explained their own. The exchange of information and ideas led to the solution of certain difficulties experienced on the bottle filling line. Production people are enthusiastic about the plan.

"We have deliberately 'fanned the flame' on this visiting policy," the director of purchases says. "We would rather take the calculated risk of overexposing our production people and vendors to each other, than to let difficulties

go unsolved. In the long run, the policy pays off."

Raw material specifications have also been reviewed and organized. The department's chemical buyer did the job of coordinating the ideas and requirements of the using departments so as to tighten specifications. Up to the point where the program was started, individual suppliers virtually had to use the trial and error method to find out what the company actually wanted in a number of important materials.

#### Raw Material Specifications

By taking U.S.P. (United States Pharmacopeia) minimum requirements for various materials, and adding the company's own requirements, purchasing was able to come up with a comprehensive set of specifications. This leaves no doubt in suppliers' minds as to what is wanted. The specifications also show the tests used on various materials, so that suppliers will understand on what basis rejections may be made.

U.S.P. standards are enlarged upon because in many cases they are not comprehensive enough to cover special problems. They specify chemical purity, which is standard throughout the industry. But most pharmaceutical manufacturers have special processes for making various products. So physical specifications, such as mesh size and color, also have to be spelled out to vendors.

The director of purchases who feels that his production control experience has been a wonderful preparation for purchasing ("It is easier for me to understand inventory plans, delivery problems, rush jobs, etc.") has many other plans. Specification, simplification of procedure, cost reduction, even further improvements in vendor relations, are just a few of the ideas he is considering.

In a department spending millions annually there is always room for improvement, he feels. "But we are not looking for change merely for the sake of change," he says. "For us to accept a new development or idea, we have to be convinced that it will make some difference in our being able to do a good job and being able to do just a job."

## STEEL:

# **Buyers Breathe Easier**

THE biggest mental hazard for the steel buyer in the months ahead is overconfidence. If you play your cards right, the last six months of 1957 should be the least troublesome in the last two years. But the possibility of a sudden turn in the market will place a premium on alertness.

For the moment, it looks like clear sailing ahead for every steel product except heavy plates, oil country goods, linepipe, and structurals. Even these so-called "tight" products have shown signs of easing to the point of reasonable availability.

Nonetheless, the smart steel buyer will not lower his guard too far. He's now in a position to get out from under the sky-high inventories of 1955-1956, and should take full advantage of the breather. But at the same time he faces the responsibility of keeping alert to market shifts that might affect availability of the steel

products he buys.

Oftentimes, the steel market can be deceptively "easy." But there is one important factor to keep in mind in your appraisal of the near future: while some steel-consuming industries appear to have slowed down somewhat, the overall economy remains strong. It wouldn't take much to tighten up some of the products that are now in relatively good supply.

The reason for this is that the steel market has any number of built-in pitfalls that are made-to-order for the unwary. To place a few red lanterns on these booby-traps, you have to look at steel supply from the starting point—the ingot.

To make our point:

A given mill can produce only as much steel as its ingot capacity will allow. Depending on demand for finished products, this ingot capacity is divided among the various finishing mills. The result is what the mills call "product mix."

This product mix will vary from time-to-time. And a good example is provided by the slump in demand for sheets. To take up the slack on their sheet-strip mills, the steel companies turned to rolling light plate on these mills. This touched off a chain reaction: it eased the pinch in light plates. And by lifting the burden of rolling light plates on regular plate mills, it enabled the mills to use more plate mill rolling time for heavy plates.

In short, the mills shifted a share of the ingot that was going into sheets, to where the market was stronger—plates. This is just one example of how the mills can change signals to meet shifting market conditions.

Just remember that the process could be reversed. For example, if the automotive market should catch fire, light plates would be shifted from sheet-strip mills to the plate mills, and the market would tighten up all around.

The big unknown in the present market to date has been the consumer. In the first four months of the year at least he has chosen to keep his hands in his pockets insofar as durable goods are concerned. But keep in mind that he's got the money to spend. And before the summer is very far along he'll have even more money. He's due for another wage

rise either through negotiated contracts or through automatic raises under long-term contracts.

The foregoing precautions are normal hedges for the experienced buyer. There is always the chance of being caught short.

But any honest appraisal of steel for the balance of the year must concede that, for the most part, steel buyers will be leading from strength.

What brought about the change from 1956 to 1957? For one, the predicted boom in auto buying failed to materialize. This and other relative soft spots played their part.

But basically it was due to (1) continued expansion of steel capacity, and (2) the long-term steel labor contract. Both are important. But apparently, the assurance of continued labor peace in steel was the much-needed ingredient to give steel buyers confidence in their future supply. It put them in a position to reduce their inventories to workable levels.

But such blessings as the longterm contract are not without their crosses. Steel prices are expected to go up again in July something like \$5 to \$7 per ton on the average. That's because steel wages will rise approximately 9.1 cents an hour on July 1. The increase is automatic.

For the mathematically-inclined, this would make a total average steel price increase of \$18.50 to \$20.50 per ton in less than a year. This figures the \$8.50 base price boost of last August, the \$5 per ton average increase in extras since then, and the expected increase this year.

# But Keep Guard Up

Since any appraisal of the steel market must take into account the anticipated overall economic conditions, we are going to try to relate these conditions to the outlook for the major steel products.

Here's how it looks from where

Sheet and Strip: Automotive will make the difference between a loose market and a relatively firm one. Appliances also are important in the sheet-strip picture. For the moment, the odds favor a loose market.

Automotive would have to catch fire in a big way to alter the outlook significantly. If buyers choose to "wait until next year", the automakers will continue their downhold on inventories and turn their attention to the new models.

It's possible that Detroit might consider bringing out 1958 models earlier than usual in a move to stimulate sales. There isn't too much they can do in this respect because new cars are planned months ahead. It's not as simple as turning a spigot off and on.

But regardless, a model changeover means that assembly lines will be shut down for varying periods. And that in itself will mean less steel consumption by the automotive industry.

A word of caution: the mills are in no mood to play "ware-house" for their sheet-strip customers. They'll use the summer months for much overdue maintenance work. And if you have any ideas about letting the mills carry your inventory, keep a close tab on your supplier. He may not have it when you want it, should the market pick up suddenly.

RETAIL PRICES OF SELECTED PRODUCTS COMPARED WITH COST OF STEEL TO MAKE THEM\* Estimates as of August 1956 STEEL COST APPROXIMATE RETAIL AS PERCENT LIST PRICE OF LIST PRICE **Automatic** Toaster \$20 NO 2 slicer Farm Tractor medium Washing Machine 1 tub electric Gas Range Electric Refrigerator 9-10 cu. ft. **Automobile** 10.1% average 4 door \*Based on estimates furnished by one large steel company

Courtesy: American Iron & Steel Institute

Remember, too, that despite Detroit's apparent lethargy, some seasoned observers are still predicting that auto production this year will at least be equal to that of 1956.

Structurals: Construction is

still a bulwark of the economy. It will be going hell-bent-for-election during the summer and into late fall. In some areas of the country, building got off to a late start due to inclement weather this spring. This, coupled with

increased mill production, eased the tightness in light and standard structurals ever so slightly. Heavy structurals showed no noticeable improvement.

Prediction: don't look for too much relief on this product. You may get a little more than you did last year-and you may not. Public and private construction are going strong. Some capital equipment spending may be stretched out this year, but there won't be a marked letdown. Here's something to keep in mind regarding capital spending: as long as organized labor is powerful enough to keep pushing up wages yearin-and-year-out, industry has got to place a premium on efficiency. This means continuing replacement of equipment and machinery as an offset to higher wage costs.

Plates: The logjam in light plates has eased considerably. This is because the mills have been rolling plate under % inches thick and under 100 inches in width on sheet-strip mills. This market will likely ease even further as long as the sheet-strip market continues easy.

The same cannot be said for heavy plate, except to the extent that the rolling of light plate on sheet-strip mills has freed plate mills for heavy gage work. There isn't much prospect for an easing in demand for heavy plate. For one thing, shipyards the world over are jammed with work. Unsettled conditions in the Middle East are spurring the drive for more oil tankers. In addition, shipbuilders are predicting a \$3 billion dry-cargo freighter program that will mean about 300 new ships in the next six or seven

Bars: Bars probably find their way into more finished products than any other single steel shape. Demand for hot-rolled carbon bars is likely to continue firm throughout the years. But there is no prospect of anything like a shortage, particularly if there is no significant spurt in automotive production. Cold-finished bars have been relatively easy and probably will stay that way.

Oil Country Goods: Don't look for any relief before end of the year — if then. But there are hopeful signs on the horizon. Most important is that mill production of oil country pipe this year will top last year's output by 10 pct. Uninterrupted production is a contributing factor. Last year's strike cost pipe mills about 9 per cent of their expected production.

The European oil shortage and increased requirements for petroleum exports from the U. S., will force oil companies to maintain drilling operations at the same high level of the last several years, according to Bay E. Estes, Jr., of U. S. Steel Corp. Another impetus to drilling is the need for maintaining reserves.

Linepipe: Says The Iron Age: "For big transmission pipe (24-36 inches), domestic mills are booked through 1960. European mills are into 1961 and 1962. Pipe for gathering and distribution lines (4-20 inches) is also reported strong. There is a certain amount of trading among oil companies to take care of emergency needs but the mills are solidly and firmly booked years ahead."

Other steel products, including wire, buttweld pipe, and electrical sheets are not expected to cause any supply problems. Stainless steel sheets showed signs of easing in the second quarter.

In appraising the outlook for steel, it's a good idea to keep an eye on the steel scrap market. This volatile commodity oftentimes anticipates changes in steel market conditions before some other barometers have had a chance to react.

Just a word of caution: scrap tends to exaggerate a trend. For example, if you took the sharp drop in the price of scrap since last December at face value, you might think that the steel market was well on its way to perdition in a wheel barrow. But just remember this: scrap prices last December were out of line due to a combination of circumstances involving (1) heavy scrap exports, (2) seasonal factors, and (3) optimistic forecasts from government and private sources on the economic outlook for 1957.

But pressure for lower prices began building up in January. Not the least of the deflationary factors was mill resistance to record-high prices in the face of an easing market in products that normally stimulate demand for the better grades of scrap, namely sheet and strip.

As a result of these pressures scrap prices dipped about 33% in four months.

It could be that the drop has about run its course. Some scrap dealers were reported rebuilding inventories, apparently in the belief that prices are due to firm up in the months ahead. The export market continues strong, and this is likely to keep the scrap market from sagging too much lower. Another point: the rising wage pattern in the U.S., affects scrap as much as it does other industry, increasing the cost of collection and processing. This tends to raise the normal "floor" under steel scrap prices.

As for the overall business outlook, more evidence is coming to light that 1957 on the whole will be another good business year. Behind this statement are two surveys. One on business was made jointly by Commerce Department and the Securities and Exchange Commission. Another, on consumer spending plans, was done by Survey Research Center, University of Michigan, for Federal Reserve.

The business survey indicated that business spending for plant and equipment will stay close to current levels through September, with spending for the year 6.5% above the record \$35 billion invested in 1956.

According to the Federal Reserve survey, consumers expect to spend about as much for major items this year as they did a year ago. New and used auto buying will be about the same. Fewer families plan to buy new homes. But intentions to buy furniture and appliances are about the same as in 1956.

Significantly, about 40% of consumers interviewed said they feel they are better off now than they were a year ago. The same proportion said they expected to get raises in 1957. Some 60% said they expected business conditions to be good this year.

The consumer survey brought out that some 41% had incomes of \$5,000 a year or more in 1956, compared with 36% in 1955. Incomes of \$7,500 or more were reported by 17%, a slight gain from a year earlier.

# TEW & OTABLE

A quick look at some worthwhile ideas and suggestions for improving your purchasing practice, developed by purchasing people in both industry and government

# Salesmen's Bulletin Board

Purchasing department of The Cleveland Electric Illuminating Company goes to a little extra effort to help visiting salesmen budget their time. A bulletin board, prominently displayed in the utility's reception room keeps visitors posted on when buyers will be tied up or unavailable for interviewing.

"Little services like this are certainly easy to perform," according to J. Donald Hogg, manager of the purchasing department, "but they definitely are appreciated by salesmen. Anything buyers or sellers can do to conserve each other's time is important—no matter how small."



# **Vendor Information Card**

Company Name		TWX No.
(2)		
P. O. Box Zone	Street Address	Telephone
(3)		
City	Zone State	Individual to Phone
(4)		
Terms	F. O. B.	Salesman
R(5) Catalogue File No.	Overland Route	Air Freight Route
(6) MANUFACTURER OF DOBBER	NUMBER (	OF EMPLOYEES   LESS than 500
\$LINE 5 NOT TO BE FILLED I	NALLY STOCKED OR MANUFACT	TURED
	SIDE FOR ADDITIONAL ITEM	IS AND/OR COMMENT
USE REVERSE	SIDE FOR ADDITIONAL TIEM	

Vital supplier information that is usually spread over a wide area is centralized in one compact record at the Kansas City Division of Bendix Aviation Corp. Material Manager K. A. Cruise uses simple, flexible 4"x6" information cards that replace address books, vendor lists, catalog file, indexes, calling card files, list of approved sources, disqualified bidder lists, etc.

As new vendors are added—or asked to quote—they are given the card to fill out at once. Files

of the cards are kept by the buyer—who may break them down as he sees fit. The basic card can be adapted in many ways to fit particular buying situations. If the file is set up by commodity, for example, he may have several cards for one warehouse that deals in a number of materials. Many buyers prefer to have two sets of cards—one immediately at hand, one in the secretary's desk for convenience in writing, calling, etc.

# Manual for Purchasing Course

The Purchasing Agents Association of Connecticut has published a Manual for a Basic Purchasing Course. The course it is based on was presented with unusual success to 400 people in 15 different classes in District 9, National Association of Purchasing Agents.

The manual, says P. J. Clarke, chairman of N.A.P.A.'s National Committee on Education, "is an outstanding achievement in the field of purchasing education. You will find detailed instructions for organizing, promoting, and operat-

ing classes—including instructions to teachers, case studies, outlines and reference materials."

The Connecticut Association is not in a position to print or duplicate the copyrighted manual—but is anxious to cooperate with local associations that would like to use it. Education chairmen and other association officials interested should write to Fred A. Harvey, secretary, Purchasing Agents Association of Connecticut, Box 229, Ansonia, Conn. for permission to do any duplicating of material contained in manual.

# The Pulse of Business

JUNE, 1957

Yankee Manager Casey Stengel once told baseball reporters: "What a lot of you fellas don't realize is that we're winning while we're rebuilding." The same is true of the economy. Despite the fairly drastic inventory adjustment we're undergoing, business is -- at worst -- moving sideways at record levels.

# PURCHASING'S

Summary of conditions

Though total value of inventories is still increasing slightly. e c o n o m i c the rate of rise has been cut markedly. In final quarter 156, we were adding to stocks at the rate of better than \$4 billion per year. Now we're approaching the break-even point.

> Cutback in the inventory accumulation rate is not due to a drop in sales. It's more a reflection of an easier supply situation. This has made it possible for purchasing agents to buy on shorter lead time.

But so far the inventory adjustment hasn't hurt. The industrial production index did slip a point in April, after holding at 146 in February and March. But a one-point downturn is not significant. The odds are the index will be uptrending soon.

Most important: the sales-inventory ratio -- the number of months of sales needed to eat up inventories on hand-has been on the downgrade since last July. Latest figures indicate it would take about a month and a half at the current sales rate to dispose of inventories now in stock. There's no inventory problem so long as the sales-inventory is moving down.

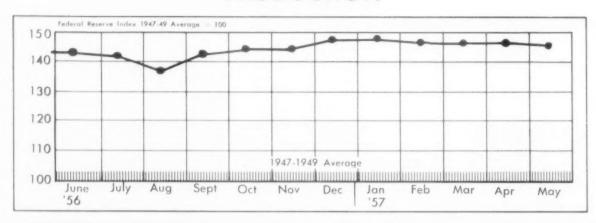
The current adjustment is extremely healthy. If we had continued to build stocks at the same rate as in the last quarter of '56, there would be definite pressure for a recession. As it stands now, we're getting inventories in balance without hurting business. It makes the second half outlook extremely promising.

Automakers are preparing for a better-than-ever sales fight with their '58 models. Almost all the auto companies have upped their TV budgets substantially. Competition will be fiercer. In addition, with the prospect that one of the carmakers may be hit by a strike in the summer of '58, auto companies will be trying to turn out as many 158 cars as they can before it's contract time.

Stepped up action in Detroit will have its first effects on the economy in the fall. It of course will mean a tighten-ing of the steel market. Other metals will ride the production wave, too.

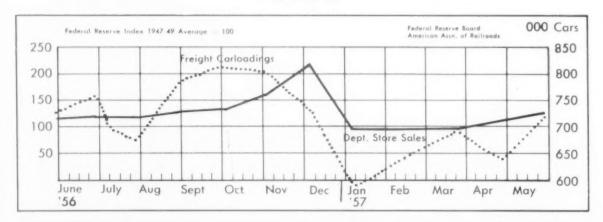
# THE PULSE OF BUSINESS

# **PRODUCTION**



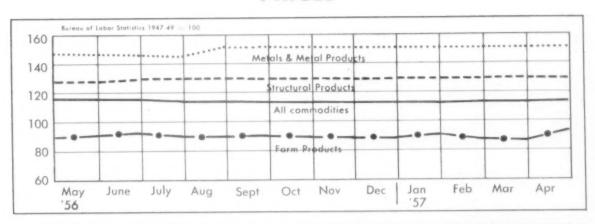
MARKET THE DOMESTICAL ME	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHA	NGE IN YEAR
Industrial Production Index	1947-49-10	00 145	146	142	- 0.7	+ 2.1
Steel Production (Weekly)	000 net tons	2,240	2,328	2.375	- 3.8	- 5.7
Electric Power Production (Weekly)	milKWH	11,286	11,693	10,815	-3.5	+ 4.4
Bituminous Coal Production (Weekly)	000 net tons	9,615	8,345	10,015	+15.2	- 4.0
Auto, Truck & Bus Output (Weekly)	units	145,674	156,834	137,040	-7.1	+ 6.3
Petroleum Output (Daily Average)	000 bbls.	7,390	7.456	6,954	-0.8	+ 6.3

# **TRADE**



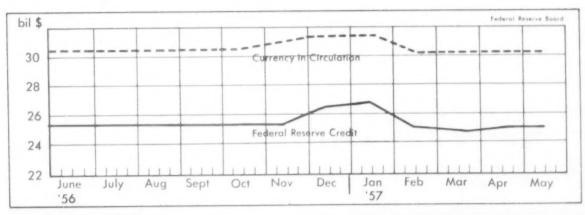
BAS	E LATEST	MONTH AGO	YEAR AGO	% OF CHA	ANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	7-49 134	113	125	+18.6	+ 7.2
Commercial Failures (Dun & Bradsfreet) no.	297	231	277	+28.6	+ 7.2
Freight Carloadings car	s 718,924	644,092	770,558	+11.6	-6.7
Miscellaneous Carloadings car	s 350.964	343,743	383,034	+ 2.1	- 8.4

# **PRICES**



	BASE		LATEST	MONTH AGO	YEAR AGO		OF CHONTH	HANGE Y	EAR
All Commodities (BLS)	1947-49 1947-49 1947-19 net ton net ton 1b.	=100 =100	90.6 150.1	116.9 88.8 151.0 133.2 874 43 .32 .321.	113.7 88.0 147.6 128.7 868.50 54.00 .46 .303 s	+ +	9.3 2.0 0.7 1.0 0 4.7 0	++++	3.1 3.0 1.7 4.5 8.0 10.7 30.4 7.0

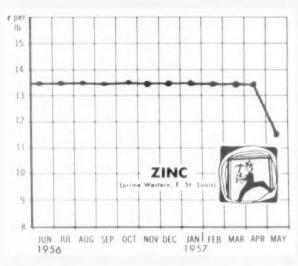
# **FINANCE**

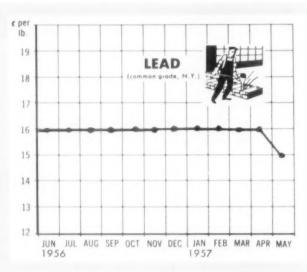


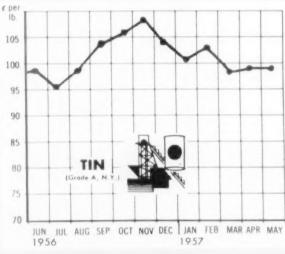
RIES FIELDS	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHAN	IGE IN
Stock Prices (Standard & Poor's)	mil 8 mil 8	46.36 11.842 25.177 30.589	44.94 10,619 25,400 30,654	48.34 10.569 25,325 30,296	$^{+\ 3.2}_{-\ 11.5}_{-\ 0.9}_{-\ 0.2}$	4.1 + 12.1 - 0.6 + 0.9

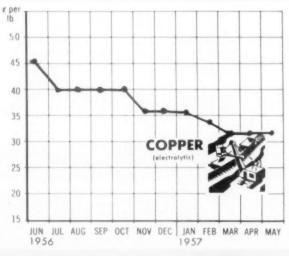
# Price Cuts Put PA's in Stronger Position

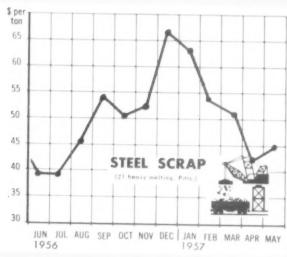
Recent price cuts in zinc, lead, copper and fuel oil have put the purchasing agent even more securely in the driver's seat. After years of having to take what he could get at whatever price was asked, the PA is now in position to call his own shots. Immediate reaction of most buyers to the price declines was one of watchful waiting—as it usually is in a weakening market. Behind the zinc and lead price slashes was uncertainty over government stockpiling plans for these metals. However, the price drops are also the inevitable result of an oversupply situation—more severe in zinc than in lead. Steel scrap firmed for the first time in 3 months, but the best bet is that the scrap price hikes will be moderate.

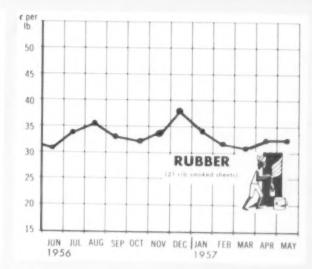


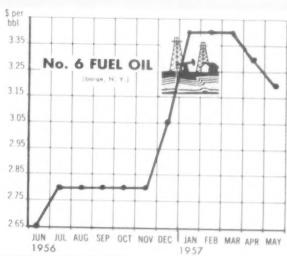


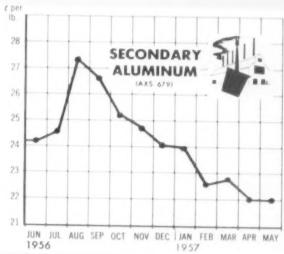


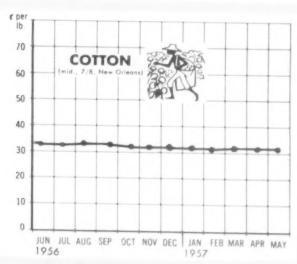


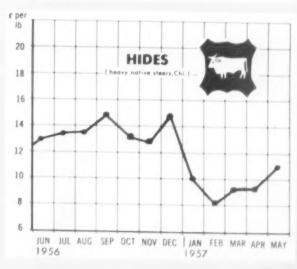












# THE PULSE OF BUSINESS

# Sales, Inventories and New Orders

Value of Manufacturers' Sales
Seasonally Adjusted
(Millions of Dollars)
All manufacturing industries
Durable-goods industries
Primary metal
Fabricated metal
Machinery
Transportation equipment
Lumber and furniture
Stone, clay and glass Other durable goods
Nandurable-goods industries  Food and beverage
Tobacca
Textile
Paper
Chemical
Petroleum and coat
Rubber Other nondurable goods
Other hondurable goods
Book Value of Manufacturers' Inventories
Seasonally Adjusted
(Millions of Dollars)
All manufacturing industries
Durable-goods industries
Primary metal
Fabricated metal
Machinery Transportation equipment
Lumber and furniture
Stone, clay and glass
Other durable goods
Mondurable-goods industries
food and beverage
Tobacca
Textile
Paper
Petraleum and coal
Rubber
Other nondurable goods
Manufacturers' New Orders (Seasonally Adjusted)
Manufacturers, New Orders (Seasonally Majustea)

All Manufacturing Industries

Durable goods industries

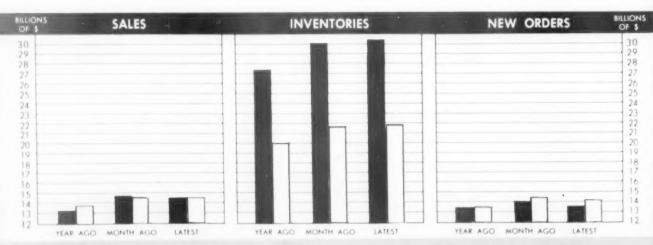
Nondurable goods industries

	1956		1957			
Mar	Nov.	Dec.	Jan	Feb.	Mar. (P)	
27,095	28,707	28,688	29,183	29,130	28,933	
13.294	14,321	14,390	14.642	14,726	14,470	
2,444	2.475	2.344	2.444	2,396	2,389	
1.385	1,541	1,459	1,560	1.544	1,504	
3.630	4,162	4.084	4.205	4,225	4,203	
3.021	3,387	3,748	3,782	3,847	3,714	
1,102	1,039	1,000	1,010	1,038	995	
676	706	731	690	713	744	
1,036	1,011	1,024	951	963	92	
13,801	14,386	14,298	14,541	14,404	14,463	
4,284	4,342	4,402	4,569	4,520	4,59	
323	350	365	356	363	340	
1,123	1,184	1,146	1,100	1,191	1,120	
893	910	873	912	870	851	
1,939	2,095	2,098	2,095	2,023	2,080	
2,567	2,682	2,662	2,883	2,731	2,72	
2,221	n.a. 2.369	n.a 2.298	2,152	476 2,230	2.26	
2,22	2,347	8,270	2,122	2,200	2,00	
47,433	51,355	51,442	51,498	51,903	52,23	
27,432	29,925	29,978 4,224	29,884 4,259	30,190 4,342	30,37	
3,677	4,128	3,112	3,019	3,044	3,02	
9.094	10,159	10,143	10,070	10,193	10.15	
6.800	7,511	7,413	7,430	7,511	7,58	
1.792	1,811	1,757	1,804	1,810	1,83	
1.010	1.058	1.027	1.057	1.074	1,10	
2,182	2,219	2,302	2,245	2,216	2,27	
20.001	21,430	21,464	21,614	21,713	21,86	
4.391	4,715	4,705	4,712	4,706	4,77	
1,870	1,847	1,843	1,942	1,965	2,00	
2,457	2,632	2,666	2,672	2,655	2,61	
1,117	1,232	1,249	1.258	1,264	1,31	
3.361	3,703	3,691	3,721	3,796	3,82	
2.785	3,089	3,136	3,113	3,084	3,09	
979	n.a	n a.	995	985	n.	
3,041	3,190	3,152	3,201	3,258	3,24	
26.912	29 429	28.817	28.935	28.228	27.8	
13,337	15,130	14,439	14,393	13,979	13,6	
13,575	14,299	14,378	14,542	14,249	14.2	

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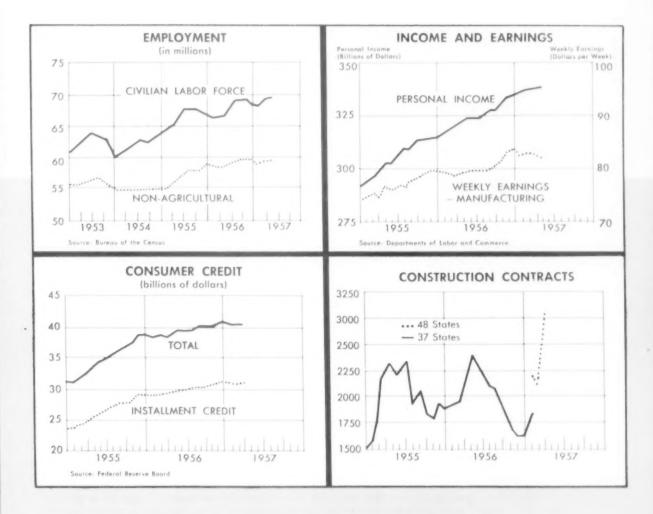
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DURABLE GOODS

NON-DURABLE GOODS





# Straws in the Trade Wind

- PURCHASING AGENTS GUESSING WRONG ON STEEL?—It's no secret steel prices will be hiked after steelworkers get their July wage boost. Despite this, PA's have not been hedge-buying against the price increase. Many buyers are figuring steel companies won't risk trying to pass on a big price increase because of the relative softness of the market. There's a good chance this is a bad bet. Evidence is mounting that the steel price hike will be in the \$8 to \$10-per-ton range. Steel-makers can't afford to absorb the increase. As it is now, they're unhappy over last year's \$8.50 per ton price jump—say it wasn't enough to cover the increase in costs.
- PRICE RISE COMING IN ALUMINUM, TOO-Don't forget that aluminum workers get theirs in August. The wage increase will be passed on to buyers. Amount of the price boost is likely to be 1¢ to 1.5¢-per-pound.
- HIGHER PRICE TAGS ON MACHINE TOOLS—In the offing—price increases for machine tools. Some machine tool builders have already put through price markups. More will follow later in the year. The anticipated steel price increase along with higher labor costs point the way to the price rise.
- POSSIBLE PRICE SUPPORT FOR COPPER--There's chance copper may be included in the government's barter program. This means the U.S. would swap surplus agricultural products for foreign copper which would then be stockpiled. Net effect would be to firm the currently weak copper price, since less metal would be on the market.
- MONEY SQUEEZE TO CONTINUE—There's no sign of an early end to the current tight money situation. Both strong demand for money and also high interest rates will continue for the rest of the year. Big outlays for plant and equipment are major factors in keeping pressure on the money supply.
- GE PRICE BOOSTS COMING--The cost-price wringer will force General Electric to up the price on many of its lines. As GE President Ralph Cordiner pointed out recently, labor costs have risen 189% since 1939, material costs have jumped 159%, while GE's prices have been boosted only 65%. "No company can absorb so much cost increase in so few years and still finance essential growth," he said. Ditto GE's competitors. Item: Effective June 1, GE upped the price of its miniature lamps an average of 10%.
- FUTURE STUFF—Cost of electricty will be going down in the next few years.

  Price cuts will be for both industry and the public. It's a case of
  the economies of increased usage more than offsetting power suppliers'
  rising costs.

# ORGANIZATION and the Purchasing Agent

By Eugene S. Page

This is the third article in a series analyzing the relationship of the purchasing function and department to the other major elements of modern industrial management.

In the Final analysis, all matters of business accomplishment reduce to the common denominator of personnel and human relationships. All job knowledge and management ideas exist in the minds of people—in your mind and the minds of those with whom you work. Your relationship with associates and suppliers at all levels, and the way they think and act, affects the way you think and act. Thus they determine the quality of your job performance.

In view of this, one might assume that in every business concern the effort to define the job of each individual, to fit the individual to the job, and to establish effective relationships, would receive foremost attention. Unfortunately, this is not always the case. In all phases of business, no other factor so vital is so generally neglected or ignored.

Look at your own company. Do you have modern methods of organizing jobs and people? Do you tell those in positions of responsibility just where their work begins and ends, and how it dovetails with the work of others? Are these relationships planned for the most efficient operation? If so—fine!

But perhaps yours is a haphazard arrangement, the outgrowth of expansion which invested money and planned facilities, but stopped there. Or possibly you have been building an organization to fit present personnel instead of (logically) the other way around. Are your people confused about what is expected of them? If so, they are inefficient. Costs are high, productivity and profits are down.

The purpose of business organization is to

strengthen job performance and to help the individual to work more effectively with other people.

### Organization Planning

Planning the organization is something like starting out on a long journey. First, you have to know the answers to a number of questions:

- 1. Where are you going?
- 2. How will you travel?
- 3. How long will it take?
- 4. What will it cost?
- 5. What will you do when you get there?

All this presupposes that you have already answered the most important question of all:

Is this trip necessary?

Organization planning should be companywide, and from top to bottom. However, the need and the principles are the same whether you plan for the entire business, or merely for a division or a single department or function. It starts with determining operating objectives in terms of profit, costs, volume, methods, and time.

Organization is the arrangement of jobs which, when properly staffed, will enable all employees, management and service and labor, to work together productively. To this end there must be,

for each position:

 IDENTIFICATION—the class of work, function to be performed, and an identifying title.

2. **DEFINITION**—what is to be accomplished in the job, the responsibility and authority vested in the position, and provisions for making business decisions within the scope of the stated authority. (Turn Page)

3. PLACEMENT—both as to the operating unit or department within which the function is to be performed, and as to the organization level at which the position is placed. All "reporting" relationships for management and control are established at this stage.

**4. ACTION**—standard practice instructions, coordination of plans for cooperative effort, the communication of authority and information, and provisions for executing business decisions.

Until you have all these factors for each job, there is no real basis for operational procedure or system. Every time you establish a new practice or write a new procedure for any job or any department, organization is involved. If organization, as such, does not exist, you create it—through the back door.

Efficient organization must come not from the bottom, through practice or hit-or-miss direction, but through sound management, at the top.

The familiar type of organization chart is very helpful in analyzing and planning organization as well as guiding operational practices. These are sometimes known as "pyramid charts" because the ultimate responsibility and authority rests in a single executive or board at the top, and is divided and delegated "down the line" through channels that spread to embrace, eventually, every specific function to be performed and every position charged with performing these functions. This applies whether the chart covers the activities of an entire company or of a single department like purchasing. It shows the "chain of command" from top to bottom, and the cor-responding chain of "reporting" from bottom to top. At each level, each position (or person) is responsible for the efficient performance and the use of all resources allotted to those "under" him. The chart also indicates the level at which coordination with other departments or functions takes place and, in the level above, the person responsible for making these relationships effective.

It is one thing to plan the organization, and another to bring it to effective action. Jobs or positions are filled by people, with all their varied abilities, habits, and prejudices. Any revision of organization disturbs present personnel. Consequently planning and execution take time. The jobs must be filled with the greatest of care, using the best available talent from all sources. Good organization also provides for training at each level to prepare personnel for positions of higher responsibility.

### **Business Decisions**

All action depends on decisions that are both right and timely. These are the essentials of intelligent and productive, profitable cooperative effort. Time is of the essence. A flow of decisions keeping pace with the course of events, and generally right, is of greater value than a few

decisions of higher accuracy but made after delay.

Business decisions vary in magnitude and importance. In purchasing, some involve expenditure of large capital funds, or borrowing to increase working capital. Others determine commitments for new materials, approval of sources, policy as to current and forward commitments. Some concern relatively small "one-time" requirements, purchase of miscellaneous hardware supplies, or the next meeting of the plant standards committee.

Every business decision, large or small, may be classified according to purpose:

A. To change or control major business assets in the interests of the owners, to discharge management responsibilities for financial position, type and continuity of operation.

B. To accept selected business risks in anticipation of profit.

C. To accomplish specific job functions.

The purchasing agent makes type B and C decisions every day in doing a purchasing job. His ability and the information he provides contribute directly to type A and B decisions made by top management and in other divisions.

Knowledge of the elements of business decisions, and recognition of these three classes, are tools that will help you plan both organization and work. The importance of those you make, and of those on which you are consulted, depends on your position in the company and your relationships with its people. Facility in making right decisions, and in contributing to the decisions of others, will improve job performance and enhance your position.

### **Job Specification**

Even the most elementary type of organization identifies the position. A man is hired as an accountant, an engineer, a public relations director, a purchasing agent, a machinist, a salesman. But the second element of organization—definition—is equally important. To do the job right, the employee must know what the company or department head expects him to accomplish in that position.

But surely anyone hiring a person will tell the person what to do! Of course. But the way of telling is important too. The best way is to set up a definitive job specification. That is not only a guide to the employee; it is a vital part of the over-all organization scheme, for *anyone* in that position or having occasion to work with that particular function and operation.

Every job has three basic parts.

1. RESPONSIBILITY. This should be expressed briefly, in the broadest terms that state the basic goal to be attained.

As purchasing agent, you are responsible for the supply of goods and services meeting acceptable standards of quality or performance, at the lowest total cost of acquisition and use.

2. DUTIES. These should be stated in some detail, including at least the major actions necessary to discharge the responsibility, and such related actions as may be assigned or delegated to the position in the general organization plan.

Your duties, as purchasing agent, include:

A. Establishment of department objectives, policies, programs, and budgets.

B. Organization planning and supervision.C. Hiring and training of personnel.

D. Value analysis of important commodities, leading to recommendations for revision of specifications and for make-or-buy decisions.

E. Negotiation and purchase of needed items, including selection of suppliers, forward purchasing decisions, scheduling of shipments, and expediting.

F. Constant cooperation with manufacturing, engineering, quality control, and accounting departments, in respect to purchasing matters.

Some of these duties will of course be delegated, such delegation to be defined in the job specifications for the appropriate positions within the department.

3. AUTHORITY. This should be stated adequately and in sufficient detail to remove all questions of power to act and of limitations thereto. There is no responsibility without authority. They are inseparable.

As purchasing agent, you must have authority to commit the company to the purchase of all its requirements, from reliable sources, subject to any specific limitations of volume, dollar value, and time.

The job specification has another important purpose. It provides the standard for measurement of job performance. Without it, the worker may be confused and the evaluation of his performance may be an equally confused opinion, colored by irrelevant personal factors.

## Types of Purchasing Organization

The place of the purchasing department in the over-all company organization, and the organization of the department itself, depend first on the method of company organization. There are two basic types.

1. CENTRALIZED MANAGEMENT. In this type of organization there is one responsibility for profit—in the executive head of the company. Management of specific business functions is centered in positions near the top, reporting to the chief executive.

In this arrangement all purchasing, regardless of location, is done by a centralized purchasing department, directed and supervised by one top purchasing officer. He is a "line" executive, managing specific work performance.

A centralized department promotes close control of many important phases of buying, such as vendor relationships, common sources of supply,

pooling of requirements, transfer of materials, methods of contracting, and selection of personnel. It lends itself to favorable specialization in the buying staff.

On the other hand, it tends to overburden the man at the top with active buying decisions and work, to the neglect of his planning and policy responsibilities. It may not develop acceptance of responsibility at lower levels to the desired extent. Unless special care is exercised, it may fail to maintain the desirable close contacts and cooperation with manufacturing activities at branch locations.

2. DECENTRALIZED MANAGEMENT. Here, the responsibility for profit is delegated to two or more executive positions, the managers of separate plants or product divisions. These managers control the entire financial, physical and personnel resources assigned to their particular unit of organization. In each such unit there are all, or most, of the normal business functions of sales, engineeering, purchasing, manufacturing, finance, etc. Thus, despite the "decentralized" label, centralization exists all over again in each self-contained unit of organization.

The purchasing agent of such an autonomous unit has central responsibility and control in exactly the same kind of situation discussed in the previous section.

However, the top executive for procurement, perhaps the director of purchases at company headquarters, is primarily a "staff" man. He does not directly control all purchases. He is the expert on the President's staff who sets policy, studies markets and business trends, counsels and guides the work of buyers in the autonomous purchasing departments through mutual good will and cooperative effort.

Decentralized organization promotes leadership and responsibility at lower levels, and tends to be more flexible, getting the job done closer to the point of requirement, maintaining more intimate contact with local conditions and avoiding some of the time-consuming channels and procedures inherent in "remote control."

On the other hand, it is more difficult to apply effective purchasing controls on such a piece-meal basis, and it may not emphasize and utilize, to the same extent, many valuable features of purchasing such as value analysis and standardization.

### Summary

Effective purchasing depends upon effective organization. If your department is doing a good job without benefit of organization planning and job specifications, these tools will make it better.

You can establish budgets, schedule materials, analyze values, standardize. Now, who will carry out these fine programs? People, of course. And how will these people's efforts be tied in with general company objectives? Through organization.

# Is Purchasing Ready



THERE ARE signs purchasing agents are becoming increasingly interested in psychological testing. The reason: they want to improve their personnel selection methods and they are seeking a better guide on promotions.

Behind it all is the realization of most top purchasing men that their departments are only as good as the men in them. They are also keenly aware that the advances made by purchasing in recent years have made it essential that purchasing seek out the best executives available. And if purchasing is to continue to grow, they know it will only be as a result of the efforts of truly skilled purchasing people.

Just how much of a help is psychological testing? The answer seems to be that if it's used properly it can do a lot. It is not, however, an end-all solution to the pig-in-a-poke process of trying to pick the right man for the right job.

The only way psychological testing can be effective is when it's used in conjunction with other standard methods of personnel selection. In screening applicants for a buyer's job, for example, psychological apititude testing cannot replace the combination of intensive interviewing, thorough analysis of a man's background and probing reference checks. Only after the prospective

buyer has passed these stages of the screening process is he ready for psychological testing.

Where psychological testing can really aid a PA is in helping him decide which of two or three promising applicants will work out best. Take the case of a PA who runs a classified ad for a buyer. On the basis of resumes sent in, he may pick out 10 possible candidates. The first interview may knock out five of them. Follow-up interviews, reference checks and a deeper analysis of the men's backgrounds may narrow the field to two.

This is where psychological testing can be of value. From the tests it's possible to find out a lot about a man's personality that can't be determined in any other way. Even the most skilled interviewer can't completely break down an applicant's "job hunting" personality. To a large degree psychological testing can.

From the tests, the PA will get a better line on which of the prospective buyers has the greater interest in purchasing, which one will probably be easier to get along with, which one will be more likely to seek out new responsibilities, which one would rather follow orders. As a result of this type of information, the PA can make a more intelligent decision on which man best meets his particular requirements.

For promotions, psychological testing can give you a clue to the way a man will react to new responsibilities before he gets them. It puts upgrading on less of a sink or swim basis.

The man who's done an outstanding buying job may not have

# for Psychological Testing?

what it takes to merit promotion to a job as purchasing agent. In his work as a buyer, his leadership qualities may not have been tested; there may be no way of knowing whether he has the organizational ability needed in a higher level executive job. Will he be able to take increased responsibility in stride? Psychological aptitude testing can give an indication.

The tests, of course, are not infallible. But at worst they do provide more information about a man than was available before he took the test. In a case where a purchasing agent may be convinced that he's found a man who'll be an excellent buyer and yet the test results are negative, the PA will at least have received a warning that it might pay to do a little more investigating.

# Can't Type Buyers

It would simplify the PA's personnel selection job considerably if aptitude profiles could be worked out for the various jobs in purchasing. But the fact is, there isn't a buyer "type," nor are there certain set characteristics that will make a man a successful purchasing agent.

As Robert Caress of the Klein Institute for Aptitude Testing in New York points out, a buyer's job in one company may require completely different aptitudes from a buyer's job in another company. In one company a buyer may be little more than a glorified clerk under strict supervision and with little responsibility. With another company a buyer may have a free rein. The main requirements for the job may be

imagination and the ability to carry heavy responsibilities.

That's the reason Klein and other psychological testing firms try to find out as much as possible about a company and its specific job requirements before doing any testing. Klein, for example was recently called in to test buyers for one of the nation's major manufacturing firms. Before selecting any tests, however, Klein first asked the purchasing agent to supply as much information as possible about what his buyers are expected to do, what kind of materials they deal with, how much training they receive and how closely they're supervised. The PA was also asked to explain what levels of management the buyers work with, both inside and outside the company; how much paperwork is involved; and whether the buyers made final decisions or only recommendations.

From this information, Klein selected a battery of nine tests which it thought would measure the aptitudes required in a buying job at this particular company.

Tests were then given to some of the company's buyers to determine whether the tests did, in fact, measure the required apti-





# The Job Interview Isn't Enough

If you're thinking of hiring someone for a responsible job, it isn't enough just to have a couple of half hour chats with him. And yet every day people are hired pretty much on the basis of their ability to smile and look interested. Purchasing agents are just as guilty in this respect as any other group of executives.

Reference checks aren't the complete answer either. They help a lot, but it's always hard to tell whether you're getting the whole story. Maybe you're considering hiring a man as a buyer. Perhaps he was fired from his previous job. You call the PA of the company he last worked for to get the facts. The PA may feel guilty about having let the man go even though he knows he was justified in doing so. He doesn't want to blackball the man for life so perhaps when he's asked for an opinion he'll give a highly white-washed version of what the man is like.

On the other hand the man you're considering may be exactly what you're hunting for, but perhaps there was a personality clash between him and his former boss. If this is the case, you'll also get a misleading report. No matter how it turns out, no reference check will be completely unbiased.

That's why psychological testing, when used along with interviews, reference checks, and thorough analysis of the man's background, can often be helpful. Tests have their flaws, sometimes they miss completely, but in most cases they at least give you a little more information about the person you're considering than you previously had. In many cases tests can give you a better picture of what the man's personality is really like than you can get in any other way, aside from working with him fer a year or so. It's another tool to help you make certain you're getting the right man.

tudes, and also to establish norms for use in screening new appli-

Included among the aptitudes measured by this particular battery of tests were: Interests, sociability, adjustability, trainability, mental ability, learnability and personality. After the tests were graded, a detailed report on each man was prepared by Klein's staff psychologists. This is a standard part of the psychological aptitude testing procedure. The reports showed how each man fared on the different parts of the test and also included a lengthy personality description of the subject, outlining his strong and weak points in relation to his fitness as a buyer. (For sample contents of a typical report see cut on p. 119).

According to the PA of the company using the testing program, the descriptions of the buyers submitted by Klein were just about in line with his own evaluation of the men from having

worked with them.

There were a few exceptions, however. From the test results, one of the buyers showed up as being an extremely strong, dominating personality. Klein warned that this type of person might resent authority, would perhaps be inclined to do things on his own that should be cleared with his superior.

The PA was unaware of any problem along this line so he checked with the senior buyer. Reaction of the senior buyer was the same-he'd never had any trouble with the man either. As a result the buyer was called in because the purchasing agent wanted to find out whether the test results were inaccurate. The buyer was told that the test showed that he resented authority. The PA also explained that so far as he knew no one in the department had ever realized this.

In talking to the PA, the buyer admitted that he did resent authority, but that he did his best to overcome this feeling. As it turned out it was a case where the test analysis was accurate, but the buyer had been able to control his excessively strong personality so that it did not become

a problem.

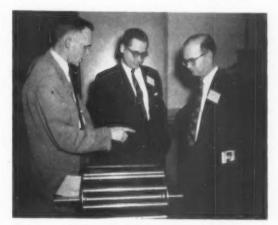
From his brief experience with psychological testing, the PA of this company is pretty well convinced that it can help him. He has always had an exceptionally good personnel selection program and he regards psychological testing as just another tool to make his screening even more effective than it has been. That's the important thing to remember: psychological testing can help in many cases, but only if it's used as an addition to a basically sound personnel selection program.



Purchasing Agent G. A. Amidon looks on as Eriez President R. F. Merwin (left) welcomes Clark Ryan, president of Forbes & Wagner.



R. A. Roosevelt, merchandise manager, explains Eriez product lines, selling methods, and markets, just before the plant tour.



Emerson Tenpas, a member of the engineering department, explains a magnetic assembly to Art Kozlowski and Art Marquis of the Metallurgical Products Division of General Electric.

# Suppliers Visit The Buyers

LATEST in the growing list of Suppliers' Days in industry was held recently at Eriez Manufacturing Co., Erie, Pa. The affair drew vendor representatives from various parts of the country. Following greetings from company executives, the visitors heard explanations of Eriez problems, future plans and objectives. During a plant tour they examined Eriez products (magnetic separators and equipment) and discussed matters of mutual concern with production personnel. Individual conferences in small groups were held following the tour.

"We hope this session will develop into an informal workshop that will be of mutual benefit," said Purchasing Agent G. A. Amidon in his opening remarks to the suppliers. "It has always been our policy to strive to build a better product at lower cost and we hope to gain from your knowledge and experience by having you learn more about our operation. We are certain that many of you will have ideas on changes in design, use of new materials or methods that will reduce our product cost. We're not looking for compliments—we want constructive criticism."



Looking over an assembly are (l. to r.) Tom Frisbie, Continental Can; Walter Nesgoda, assistant purchasing agent; W. C. Jenner, R. M. Houghton and J. W. Tierney of Houghton Laboratories, and William Benson, Eriez project engineer.

As the session moved along, suppliers and Eriez personnel broke up into huddles. Here are Max E. Hartl, marketing magnetic material manager of General Electric and Purchasing Agent Amidon.





# A Catalog System for 3 Million Items

After years of planning, the Federal Government has a uniform catalog system for military supply items. Its goal—now in view—is a system that includes all non-military supplies as well.

By A. N. Wecksler

Roger Gay, director of cataloging, standardization and inspection for the Department of Defense, looks down the long row of files covering the previous multi-service identification for bearings used by the Government. These records are reduced in number by consolidating into a uniform system for all Government agencies—and the reference can be transferred to the tenrolls of magnetic tapes in the left foreground of the picture.

AFTER years of planning, the Federal Government has now established a uniform catalog system. More than three million existing supply items for the military have been assigned Federal stock numbers.

It now remains for the system to be extended to non-military supply items in order to reach a goal that has been talked about for several decades.

The uniform system replaces the previously unrelated cataloging systems used by the various military services and by the General Services Administration.

A graphic illustration of how the old system worked is the simple case of a 25 watt, 115 volt light bulb General Electric's catalog number for the item is 602.

Before the adoption of the uniform catalog, the Air Force identified this bulb as AF 8870-716000-295. The Navy used G17-L-2990. The Army Signal Corps called it 6Z6815-48. Army Ordnance said 504555. The Army-Navy military joint standard identified the item as MS15586-4, while the GSA number was A-5.

Today there is one Federal stock number for this bulb. All purchases of the item must be made according to this number. All bins containing the item must carry this identification. The new number is Federal Stock Number 6240-797-8900.

This number wasn't just picked out of a hat. In any single Federal catalog system, there must be room for many millions of items. The system must be able to accommodate additions as the GovLeft to right—Assistant Secretary of Defense E. Perkins McGuire, Congressman Chet Holfield, of California, of the Government Operations Committee, and George W. Ritter, staff director for cataloging, defense supply and logistics. Ritter points out some of the features of the data processing unit used in the new Federal catalog system.



ernment stocks new items; furthermore, the system must be fool-proof.

Four descriptive words sum up the basic requirements: uniformity — stability — adaptability simplicity.

The Federal stock numbering system must be uniform. It has to provide stability, in that the stock number assigned to an item of supply lives with it "forever" The Federal stock number needs to be adaptable to the differing requirements of the supply management and operations of the various segments of Government; also to new equipment—mechanical, electrical and electronic.

Finally, the requirement for simplicity calls for the numbering system to apply to all items without modification— with the listing easily maintained and easily recognized.

## What Goes into the System?

The numbering system is applied only to stocked items. A single purchase is not entered into the system.

Stocked items are divided into two general categories—those that can be identified by description, and those that must be identified by reference.

In the category of "descriptive" items, several types are established: Type 1 covers the items which can be completely described by words—such as nuts, bolts, etc.

Type 1A applies to an item which is describable, but where there is a requirement for maintenance parts that limits the buyer to a single source—for example, a component for a specific aircraft produced by a single supplier. In this case, in addition to the description a reference to a manufacturer's number is needed.

Type 1B covers items similar to Type 1A, except that there is a variation in the item covered by a manufacturer's number—for example, a propeller ring bearing which calls for the buyer to specify the type of lubricant.

All describable items are described according to a pattern. Specific characteristics have to be named. Roughly a million and a quarter items are so described. The descriptions are published and maintained on 8 x 5 cards—and by the end of 1958, when the military will be completely converted to the new catalog system, the handling of this data will be completely mechanized. As of now, all items identified by manufacturer's part number are now on tapes.

Second basic category of items in the system is for so-called "reference identifications", where it is necessary to refer to the manufacturer, the part number and part name. This category has been divided into two types—Type 2 and Type 2A

In both these types, the reference is to items of such specialized design, complex nature or limited application that it just doesn't make sense to try to describe the item. In the case of Type 2, the manufacturer's number covers only one item—while in Type 2A, the manufacturer's number covers variations of a single item.

All supply items are assigned a Federal stock number. Each number is preceded by a four-digit number, which represents the general classification (or major family grouping) in which the item falls, plus the sub-class.

First two digits supply the general family grouping—hardware would be represented by the digit 53, clothing by 84, engines by 28. The second two digits provide the sub-class.

The Federal item identification number is merely supplied in sequence. It has no significance other than its reference to the identification card which provides the description of the item.

Here is roughly how the new system will work:

Assuming that Naval Air Station at Alameda, Cal., has a requirement for a new item of supply (at least new to its own re-

Political Stock Humbur		FEDERAL SU	PPLY CATALOG	Item Identification Card
6240	155-7959	TYPE OF ITEM IDEM	351A	ACTIVITY ITEM DESIGNATOR
e. 3 mean 3. lmmp data a. double b. bulb da (1) G-5 (2) fin (3) W/A c. red lig d. filmen (1) 1 f (2) tun (3) C-2 (4) W/A	rating data 5 v age rating n rating gn current rating spherical cp per Ref Dug Group 7 contact bayonet can ta ish, A/A th emitted t data ilament guten v max over-all lg ted life		8, 9. R/A 10. govt atd dat a. AH b. dwg no. 3 c. part no. 11, A. R/A B. for general C. lamp no. 78R	142 AM3142-R78 purpose use
DD : JULY 88 146	THIS CARD	17llov50 erec	IAL NOTATIONS	

A light bulb can be completely described with words—which qualifies it as Type 1 in the new Federal Supply Catalog.

quirements), Alameda sends its requirement to its supply management center at Philadelphia.

There it is determined whether the item is indeed new, or is already stocked. If the item is stocked, Alameda is supplied with the identification number as already assigned.

If the item is in fact new to the military establishment—and has no Federal number, Philadelphia applies to the Department of Defense for a Federal stock number supplying all the data required whether descriptive or by reference—as needed to carry the item.

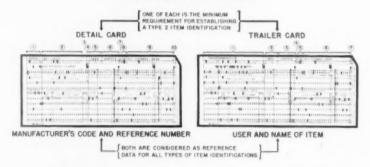
The agency that handles the assignment of numbers is the Cataloging Division, Office of the Assistant Secretary of Defense for Supply and Logistics.

### Number Assigned Quickly

Currently, the division supplies a new stock number within 10

Where specific reference is required for identification, a quick system has been set up so that the reference data are immediately available.

## EAM CARD FORMAT



#### DETAIL CARD DATA

INDEX	COLUMN (S)	DAYA
	9.15	PRODUCE SUPPLY CODE FOR MAGNET TUREN'S
7.	15.30	MANUFACTURER'S IGENTIFYING NUMBER
8	3.8	MANUFACTURER'S IDENTIFYING NUMBER OVERFLOW CODE
	87	ITEM VARIATION LOSE
8	54-56	PERSONAL SUPPLY CLASSIFICATION TIME (FEC)
6.	19.78	PEDERAL ITEM GENTIFICATION NUMBER (F.IN)
		DESCRIPTION TYPE LOGS
	12 70	CATALOGING STYRIOR COSE FOR ACTIVITY SURNERSHOPS
16.	50-68	ACTIVITY STOUR NUMBER
10	79	CAM LENU NUMBER

TRAILER CARD DATA

NUMBER	(AAD COLUMB(S)	BATA
	N-32	NAME OF 17EW
	54 - 50.	FEDERAL EUPPLY CLASSIFICATION CODE IFECT
8	75-78	PEDERAL ITEM (DENTIFICATION NUMBER (FIN)
*	80	DESCRIPTION TYPE CODE
	46.48	SATALOS SIVISION CORE FOR ACTIVITY CORNEASHIP)
	50.58	ACTIVITY STOCK MARKER
	70	TAN TARE NUMBER

days of the time a request is made. When the system is fully operating, the aim is to speed up the process so that the same service can be supplied in four days. This is especially important to industrial suppliers to the Government—who have feared that a centrally controlled stock numbering system would pile an additional layer of red tape on an already complicated process.

Before the uniform system was devised, it took as long as 90 days to get a military service to assign a stock number—so that the four day goal represents a real advance.

Another benefit of a single system is that such users of military supplies as the North Atlantic Treaty Organization (NATO) nations can and have hooked into the uniform system. The system can also yield all kinds of data—such as who are the specific buyers of an item—which up until now was buried under a mass of duplication.

When a new "reference" has been assigned a number by the Department of Defense it is sent to the three services. They in turn inform their supply managers who are potential users of the item.

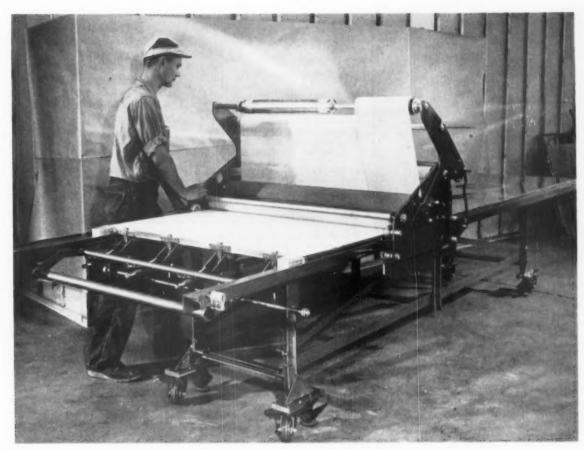
If the item is a "descriptive" item, the number is sent to the supply managers of each of the military systems that might have a requirement for the item.

Obviously, there is no such thing as a simple supply system involving many millions of diversified items ranging from pins to a guided missile.

What can be said is that one catalog number, however long, is superior to a half-dozen different numbers for the same item. It is estimated that the single catalog has reduced listings by about 900,000 items—just by ending duplication.

The designers of the system claim that it is completely safe—that a user in Walla Walla or in the Saudi Arabian desert knows that when he orders by number, he'll get what he wants.

They further claim that it is a stable system. As the numbering system has no detailed significance, they can keep on numbering until the number of items reaches as high as 10 million.



Polished metal sheets are covered with protective tape to prevent scratches, nicks and other marring defects which could occur during fabrication into appliances, cabinets or counters.

# Profitable Uses of Pressure Sensitive Tapes

By R. W. Mueller

General Mgr., Industrial Trades Tape Divn., Minnesota Mining and Manufacturing Company

THE difference between knowing use of pressure sensitive tapes and a purchasing guessing game can mean big savings and often a better product to a firm.

In Hartford, Conn., for example, a typewriter company has reduced packaging costs more than 20% and recovered 50% of its production area by using a few lengths

of filament tape to secure carriages for shipment.

Colgate-Palmolive company is maintaining its sales edge over competitors by a simple change in product design. Pre-punched holes covered by a tab of tape have replaced the solid top cover on its Ajax cleanser can.

And many companies using a

paper tape for masking or other tasks have found they could use narrower widths or shorter strips. Improvements in masking tapes and masking techniques have made these cost-cutting moves possible.

The jobs which tapes perform are generally grouped into rough categories. Examples: closing,



A glass cloth tape placed on the underside of seams to be welded prevents the flux from falling through and makes the weld neater and stronger.

Red plastic tape used as a floor lane mark warns employees that smoking is prohibited. A yellow plastic tape line informs them smoking is permitted on the other side.



Filament tape reinforces and holds frozen food shipping cartons, extending use life two and three times.



sealing, banding, identifying, marking, reinforcing and protecting.

But these categories are at best only an indication. One job may fall into one or more groups, or else possibly may not fit in any single group.

An ice cream company, for example, closes shipping cartons automatically with two strips of pressure sensitive tape. But colored tapes are used. The color depends on the contents, to allow identification of the carton at a glance.

And the tape is applied by mechanical carton sealers built into the production line. This arrangement speeds packaging operations and it permitted the company to reassign several workers to other jobs.

Thus the application may be classed in either sealing, identifying or automation. The category is not important, but the savings and efficiency are.

Another closing job proves that machinery can duplicate almost any taping operation done by hand. An explosives manufacturer has a machine that takes odd sized cartons in any sequence, centers them, pats down the lid and applies a strip of tape along each side of the box.

Protecting is one of the first tasks industry assigned to tapes—applying masking tape to auto bodies for two-toned painting. The application looks deceptively simple—until excessive material costs or rejections on finished products begin to show up.

Frequently the cause can be traced to the use of the wrong masking tapes before use.

More than 16 different masking tapes are available. Each is particularly adapted to a range of jobs. One may work in paint drying for exposure to temperatures up to 200°F., but over that it could not do the same job as a tape designed for higher temperatures.

Masking or protective operations are not limited to paint shop techniques. Nor is masking tape the only pressure sensitive tape used for this application. Appliance and aircraft manufacturers cover polished metal sheets completely with a protective

paper to prevent scratches, nicks or gouges during fabrication of the product. When metal parts are etched, plated or milled in acid baths, the sections not to be affected are masked with plastic tapes resistant to corrosive action.

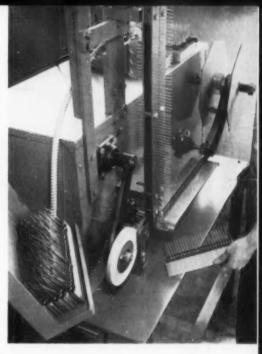
Holding is a job which has developed primarily in the packaging departments of industrial firms. For example, delicate springs are kept from tangling during shipment by placing them on the adhesive side of wide strips of tape. Unpacking is an easy job, and the tape also acts as a cushion to prevent them from becoming distorted.

Bales of felt and soft goods are banded with filament tape in many textile plants. The tape, slightly elastic as well as strong, does not leave objectionable impressions on the material. Filament tape has many such holding uses. Rolls of thin metal sheeting are held securely in coils with strips of this tape, as are giant rolls of carpeting in textile plants.

Reinforcing is another job which is especially well handled by filament tape. Many bakeries have extended the life of paperboard carrying boxes by reinforcing them at the corners and around the gripping handles with filament tape. And tumble tests have shown that boxes closed with filament tape can stay twice as long in the tumble wheels as boxes closed with other reinforcing material. The test would be the same as if the box fell down a stairway of 1,000 treads.

Identifying is a problem for makers of products difficult to label or mark. Use of printed sensitive tapes has helped in a number of cases. American Chain and Cable Co. is using a special abrasive resistant tape to mark its chain products according to grade and product name. At five foot intervals a band of printed tape is automatically applied to identify the chain-a job which had been impossible until tape was used. Aircraft companies use printed tapes to identify fuel line systems in aircraft, and the tape is often subjected to temperatures between 300°F. and 400°F. without losing either its grip or legibility.

Small, hard to handle items like electronic components for printed circuits are belted on continuous strips of pressure sensitive tape. They can be fed to input machine directly from the carrying reel.



A shipping problem common to many firms has been eliminated through the use of printed tape. Shipping cartons have to be printed to identify their contents, but warehouse space frequently is not available to stock cartons for every product. A single standard carton can be stocked and marked prior to shipment with labels printed on tape. And frequently the tape label can be applied automatically with a mechanical applicator

Banding is a development primarily of food and drug manufacturing companies for use in product promotion, display and merchandising. In the highly competitive retail market, introducing a new product can be difficult. The product has to gain customer recognition and compete for display space on the retailer's shelves. One successful technique is merchandising the new item in combination with another, better known, product. Both can be joined inexpensively in one package with a strip of tape, and the tape can be printed to carry a sales message.

Products difficult to label, such as chain, are easily handled by tapes. Chain can now carry brand identification and product grade with a band of abrasive resistant tape.



# ADP: Your Order Processed in Minutes

THE Reynolds Metals Company has unveiled the nation's first industrial interstate facsimile communications network for handling purchase orders, originating hundreds of miles away. The system is one of the outstanding applications of automated data processing.

Using a transmission principle

similar to wirephoto, the system is the first industrial application of alternate voice-and-facsimile transmission over the same circuit. Western Union and American Telephone and Telegraph Company developed the network in collaboration with Reynolds sales and systems personnel.

Now in initial pilot operation,

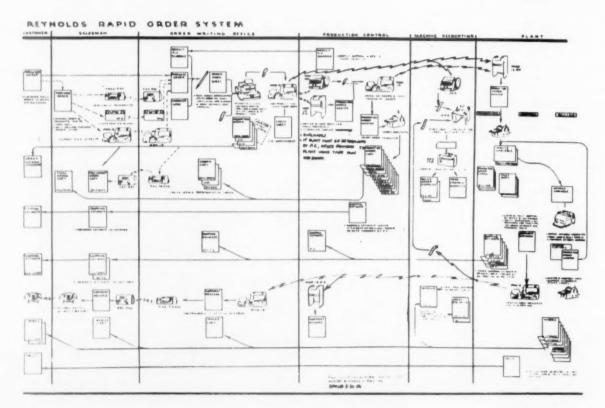
the new system links New York, Boston, Hartford and Newark. Believed to be the most extensive facsimile network serving business today, the network can transmit typed, written or printed material instantaneously.

The system employs page-size Western Union Intrafax (fac-simile) machines to provide instant, automatic, two-way transmission of information in fac-simile picture form. Reynolds is considering extending the pilot system to other parts of its nationwide organization.

David P. Reynolds, sales vice president of Reynolds said, "This new Intrafax system enables us to process purchase orders and related information faster and more efficiently. We expect to transmit thousands of orders monthly in picture form, thus assuring accuracy, better service, and increased customer satisfaction."

## Handles Diverse Materials

Western Union engineers designed Intrafax to handle such diverse materials as diagrams, maps, blueprints, and complicated





STEP 1.

A Reynolds district sales office employee has placed the purchase order form on the Western Union Intrafax transmitting machine. She presses a button which activates the rotating cylinder and electric eye, and the order is flashed by wire to the New York regional sales office.

tabulations which, they said, cannot now be transmitted by any other medium.

They said Intrafax requires no photographic, chemical or drying preparation at either the sending or receiving end. Purchase orders and other material are placed directly on the machine, about the size of a typewriter, and a button is pushed to start transmission. The material is received ready for instant use on "Teledeltos," a dry, electro-sensitive recording paper.

William L. Crunk, general supervisor, Reynolds sales office at Louisville, who is in charge of the company's communication system, described the Intrafax network as designed for integration with Reynolds' coast-to coast private-wire telegraph and private-line telephone networks. A telegraph network with stations in twenty-six states currently links all Reynolds plants and offices with 12,000 miles of circuits, while the telephone system handles 360 calls per hour on a 6,500 mile network.

### **Order-Matic System**

The Reynolds order-matic system, of which facsimile is the initial step, begins with the writing of a production order by sales. The order is transmitted simultaneously to the production con-



STEP 2.

The order is received immediately in the Reynolds New York regional sales office in an expact picture facsimile. It is taken from the machine ready for instant use.



STEP 3.

The purchase order, received as facsimile, is translated into a Reynolds production order on a Flexowriter. This machine simultaneously produces copies of the production order, an immediate acknowledgment for the customer, and a paper tape which is used for automatic transmission to production control and manufacturing locations.



trol offices and to the plant shipping offices.

More than three years of pioneering work by Lawrence Hilgeman and Gordon Robertson, systems manager, in collaboration with other major divisions of the company was required to perfect the system.

Further efficiency is obtained in this automated data processing

system by the use of standard business forms especially developed for Reynolds by Moore Business Forms, Inc., pioneer in and one of the largest manufacturers of business forms and systems.

The firm cooperated with Reynolds in the designing, technical specifications and manufacture of the various forms used in the new system. Mass production manufacturing is not the only area in which value analysis can be profitably applied. The Tennessee Valley Authority has had striking success in cutting costs in the two years that its value buying program has been in effect. This adaptation of an official report on the program—prepared by the General Procurement Branch, Division of Materials—provides some notable examples of cost reduction in purchasing for maintenance.

# MRO Value Analysis Pays Off for TVA

VALUE analysis is not new in TVA. Opportunities for savings have not been overlooked, but until recently there was no organized program of value analysis.

A couple of years ago it became apparent that a systematic program was needed if full advantages of value analysis were to be realized. It was obvious that cooperation of divisions would be necessary to make the program effective.

At a meeting with the Power Stores Section and Power Production Branch, those areas most likely to produce results were discussed. These are some of the basic ideas considered:

 Open up as many replacement part items to competitive buying as possible by buying from component manufacturers instead of equipment assemblers, by substitution of parts, and other means.

Determine annual steel requirements for maintenance purposes to permit the use of indefinite quantity term (IQT) contracts, car load shipments, mill purchases, stop cars, and other cost reducing methods.

 Determine the possibility of developing patterns and/or drawings for major pulverizer parts, ash handling system castings, etc., in order to secure competitive alternate sources of supply and to improve service life. A meeting was held within the General Procurement Branch to discuss and explore the many problems inherent in such a program. The purchasing agents were made aware of the possibilities of the program. We also arranged for Larry D. Miles, Director of Value Analysis for General Electric Company, to talk to our purchasing agents about GE's value analysis program.

### Some Results of the Program

Pulverizer balls for the ball mill pulverizers at Shawnee, Widows Creek, Colbert, and Watts Bar were bought as repair parts from the boiler manufacturer. A search revealed one other source. The initial purchase of 617 balls from this new source was made at a saving of \$4.75 per unit or \$2.931 for the total requirement. Another purchase of 1,060 balls in February 1956 resulted in a saving of \$7,155. A conservative estimate of the annual saving from this source is over \$20,000.

These same pulverizers employ a V-belt drive. Due to the high operating load, a steel cable belt was originally used and replacements bought as repair parts. Tests were made of manufacturers' standard high capacity belts and they were found to be satisfactory. Then requirements for the plants using these belts were combined for bid advertising pur-

poses. These developments resulted in reducing the unit price from \$12.08 for the steel cable belt to \$5.67 for the high capacity belt for an estimated annual saving of almost \$26,000.

Feed belts for coal scales had been bought as repair parts from the company manufacturing the scales. Specifications were requested from the requisitioner to permit competition. Satisfactory belts were obtained by advertised bids at \$42.78 each compared with the repair part price of \$91.25. The estimated annual saving is over \$31,000.

Brake lining for a 9-ton barge unloading crane at Shawnee, previously bought as a repair part from the equipment manufacturer, is now bought by specification from brake lining manufacturers at an estimated saving of \$650 a year.

Cast bronze bearing halves for crushers and rotary kilns in Chemical Engineering had been bought as repair parts. A foundry operator took a discarded bearing (two halves) and made a pattern. He was then able to quote on replacements, of a more durable brass analysis, at 45% of the price we had been paying.

We have been buying rollers for rotary dryers as repair parts. The manufacturer quoted \$2,186 each for two rollers on the most recent order. Their delivery promise was 6 to 7 months. We



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Forging Ahead Through Leadership, Quality, Service & Understanding



Paul Fahey (1.), director, and H. B. Hendrix, assistant director of the Division of Materials of TVA.

have located a foundry who will furnish these two rollers at \$513.18 each for 65 days delivery. This price includes a pattern charge of \$340 but does not include machining estimated at \$100 or less per roller. The saving on this one order is approximately \$3,500 and delivery is much better. Also, future purchases will cost us approximately \$440 per roller compared with the \$2,186 formerly paid.

### Specialty Suppliers Help

Tremendous savings have been made in the purchase of instrument recording charts. Previously these charts had been bought as repair parts from equipment manufacturers. Finally, a specialty supplier was found who furnishes them at greatly reduced prices. We estimate annual savings of at least \$10,000 from this source.

Examples have been given where repairs are cheaper than replacement. Sometimes the opposite is true. A manufacturer was requested to quote on conversion of some of its valves from hand-operation to motor-operation. Their quotation of \$21,149 was considered excessive. An advertisement for new motor-operated valves resulted in a bid of \$15,773 for a saving of \$5,376.

Chemical engineering furnaces require large carbon electrode

holders. Previously these holders had been sold as scrap when burned or broken. It was decided to have two holders repaired as an experiment. The cost was \$180 per holder, compared to \$2,700 each for new ones. Repair costs vary of course with the condition of the holders, but the saving is estimated to total \$11,000 a year.

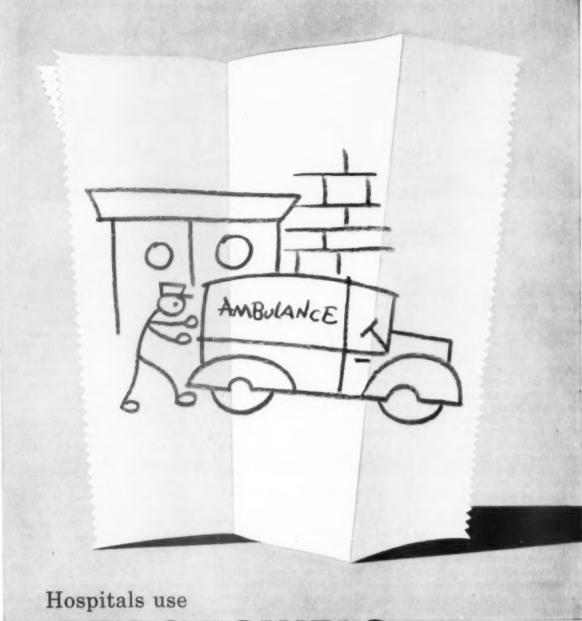
One study, of a fungicide solution for the prevention of athlete's foot, reached an interesting conclusion. The requisitioners specified a certain brand-name fungicide. The purchasing agent attempted to find comparable products in order to obtain competition. The Division of Health and Safety was requested to test two products for acceptability. Their recommendation, which was accepted, said that extensive investigations by competent scientists proved that shower rooms play a negligible role in the spread of fungus infections of the feet, and in addition, some preparations are actually harmful. Consequently, the use of fungicides was stopped altogether, annual purchases of approximately \$2,600 were discontinued, and trays on hand were returned for a credit of \$168.

Large quantities of special alloy fittings are used. They were originally specified to be either forged or fabricated out of hot rolled stock. Both specifications are expensive. At Materials' request. engineers agreed to test samples of these fittings made from castings, the reason being that cast fittings cost roughly from onefourth to one-third as much as forged or fabricated fittings. Samples were obtained in two classifications: One schedule is a centrifugal casting designed to take machining and considerable pressure; and a second schedule is a forced shell casting of remarkable accuracy. As a result of the experiment, the first schedule of cast fittings has been placed on the acceptable list; the second one is acceptable in most installations. Based on past purchases, savings on cast fittings are expected to total at least \$25,000 a year.

Power Stores Section has made substantial progress in the re-

Regular meetings are held within the General Procurement Branch to explore problems in the value analysis program. Shown here (l. to r.) are: J. W. Almquist, supervisor, mechanical section; H. H. Hicks, supervisor, electrical section; E. M. West, assistant chief and L. B. Rockwell, chief of the branch; and M. P. Jacobs, supervisor, structural section.





# **NIBROC TOWELS**

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And like hospitals—you too have better reasons than ever to buy Nibroc Towels. Now available —New Nibroc white towels, pure white—product of an exclusive Brown Company "white magic" bleaching process. Nibroc Towels in natural shade are vastly improved too, by new manufacturing techniques. Nibroc Towels are soft, sanitary, absorb water instantly.

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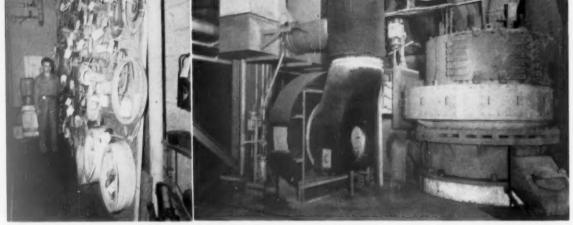
wet-strength towel. Economize with Quality. You can save money if you buy Nibroc Towels with Nibroc Sofwite® and Softan® tissue. For information call your dealer listed under "Paper Towels," or write us at Dept. NG-6, 150 Causeway Street, Boston 14, Mass.

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Other NIBROC Quality Products: INDUSTRIAL WIPERS . WINDSHIELD WIPERS . KOWTOWLS . WALL, FLOOR and RECESSED CABINETS

For More Information Circle No. 215 on Inquiry Card-Page 17



TVA uses a wide range of Teflon gaskets in its Division of Chemical Operations, Wilson Dam, Alabama.

A coal pulverizer in a steam-electric plant. Savings were made through value analysis of belts, balls, and coal feed pipe material.

pair parts field. They have succeeded in converting many repair part catalog numbers to prime manufacturers' numbers. The savings are impressive. For example, clutches for certain tractors cost \$385.31 from the tractor manufacturer. They cost \$184.76 from a jobber for a saving of \$200.55. Annual savings are estimated at \$3,200.00.

The majority of oil filter elements, used in a variety of equipment, have been converted from the equipment manufacturer's part number to jobber numbers resulting in a saving of from 50 to 60%.

For years we have tried to standardize purchase of bearings by the bearing manufacturers' stock numbers. The problem is complicated by the great variety of equipment using bearings of all types. A study by Power Stores Section of their bearing stocks showed most bearings were being bought from equipment manufacturers under their part numbers, and at list prices in most cases. They also found large quantities of identical bearings with different equipment manufacturers' part numbers. Power Stores Section has now furnished each storekeeper with a cross-referenced list of bearings, and the stock is kept under the bearing manufacturer's numbers. Surplus stocks have been substantially reduced by transfer between plants. Contracts have been made with bearing jobbers for most types at list less 50 and 5%.

Large quantities of oil seals and "O" rings are used in the various plants. Power Stores Section has furnished storekeepers and mechanical supervisors with a manual of engineering data and conversion tables between manufacturers' and jobbers' numbers, enabling them to select the seals needed and secure them from jobbers. A contract has been made allowing list price less 50 and 5%.

# Possibilities for Additional Savings

The operating organizations are in the best position to identify the possibilities of savings through use of alternate materials. They know when materials do not give the service expected and when frequent replacements of parts are made. Division of Materials does not seek alternate materials without the concurrence of the requisitioner.

Following are examples of some further instances where costs might be reduced through value analysis. These items are now under consideration and will be discussed with the divisions concerned.

 At present, we replace wornout rolls with new rolls bought as repair parts at \$160 each.
 A foundry operator has proposed that the roll that would normally be discarded be machined to a smooth surface to serve as a mandrel for a nickle bearing cast steel shell. The shells would probably cost more than the rolls we are now buying—at least until we started buying in sufficient quantities to earn a reduction. It seems worth a try, however, even it it turns out unsuccessfully. The nickle bearing cast steel material has outlasted other types of metal, such as the gray iron in the present rolls, from 5 to 10 times.

2. We have been purchasing hydrovactors as repair parts of plain cast gray iron at \$379 each. We have located a foundry which will furnish them of a nickle bearing cast steel material in lots of five at \$150 each. In addition to the cheaper cost and longer wear, we could expect more consistent quality, that is, we would not have to return so many castings for visible defects as we now do with the gray iron castings.

items, such as bull rings, rolls, and liners for the bowl type coal crushers, and steel balls, upper and lower races, and throat plates for the pulverizers as repair parts. We have obtained drawings for many such parts and are having them checked by Law Division for possible patent infringement. The possibilities in this type of purchase are tremendous. If

(Please turn to page 336)

Another Goodyear First:

# V-Belts with the Green Seq!



# stay matched from factory to drive

The Green Seal signifies true dimensional stability. It means that now when you reach for a matched set of V-belts, you can be sure they're matched—no matter how long they've lain on the shelf. And that means longer life and a minimum of down time.

It used to be that only steel-cable V-belts by Goodyear were length stabilized. But now, through the miracle of Triple-Tempering, they've been joined by all the other Goodyear Industrial V-belts.

Triple-Tempering is the exclusive process wherein synthetic cord is carefully brought to the peak of strength and stability by controlled tempering with Tension, Temperature and Time. And this gives you not only *length* stability in storage, but greater

shock- and stretch-resistance on the drive.

In addition to 3-T load-carrying members, the Green Seal also brings you "balanced construction." This means each component of the belt is specifically designed to its job to give you cleaner, smoother, longer running which adds up to maximum, trouble-free horsepower hours at minimum cost.

The next time you need V-belts, be sure they're wearing the Green Seal—the mark of a V-belt made with the technical know-how of the world's largest rubber company. They're readily available at your Goodyear Distributor. Or write for details to Goodyear, Industrial Products Division, Lincoln 2, Nebraska, or Akron 16, Ohio.

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For More Information Circle No. 216 on Inquiry Card-Page 17

JUNE, 1957

135

# Discounts, Discrimination and the Robinson-Patman Act

Are you sure the price breaks you are getting are not breaking the law? Congress is now considering a bill to limit the "good faith" defense on price discrimination. Since you may be directly affected you'd better stay informed on what the law says you can and cannot do.

## By Albert Woodruff Gray

SUIT has been brought by a wholesale distributor of radios and television products against the International Telephone and Telegraph Company and others for the treble damages provided by statute for violations of the antitrust laws. In that action it is contended by this wholesaler that while he had been designated as a sole distributor of these products the manufacturer was at the same time selling directly to retailers at lower prices and with greater discounts and allowances than were granted to him.

### Discrimination Forbidden

This statute on which that action is based forbids dealers "to discriminate in price between different purchasers of commodities of like grade and quality," when the effect of so doing may lessen, injure, destroy or prevent competition "with any person who either grants or knowingly receives the benefit of such discrimination."

By that same statute it is also made illegal to pay any customer for services or facilities unless such payments are available to other customers "on proportional equal terms" to all the competitors of such a customer.

### **Treble Damages**

The right to treble damages is conferred by the statute on anyone who has been the victim of such discrimination or suffered a loss through an infraction of the anti-trust laws.

Application was made to dismiss this action on the ground that this price discrimination occurred in sales made respectively to a wholesaler and a retailer. Sales made to retailers at prices less than those charged a wholesaler, the manufacturer contended, were not violations of the law as the statute forbade discrimination, not betwen wholesalers and retailers, but between competitors.

In its recent decision of this application for a dismissal of the action the Federal court said of the right of a distributor to such damages, "There doesn't seem to be any sound reason why under these circumstances the wholesaler should not be entitled to maintain an action under (this statute) for damages, assuming

that there has been a lessening of or injury to competition through discriminatory pricing by a manufacturer.

"The wholesaler is one of the immediate purchasers from the manufacturer and it would seem to make no difference that his injury was not suffered by his inability to compete with others on his own distributive level but by the failure of his customers to meet the competition of another immediate purchaser from the manufacturer. If what the wholesaler alleges is true there has been a lessening of and injury to competition and it has occurred as a result of violation of (this statute)."

### Refusal to Trade

Only a short time before another decision was rendered in a suit of this character, based on similar circumstances, in a Federal court in Oklahoma against the manufacturer of cigarette lighters. In that instance a retailer contended that the manufacturer had violated this statute by refusing to fill his orders while at the same time furnishing these goods to a

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Youngstown Sheets and Strip Detroit's high-speed automobile body presses are busier than ever turning out body components for today's modern-design cars. More intricate door and fender sections of the new models demand a steel of the highest quality that can take the required deeper draws in its stride. Without question, that steel is Youngstown Cold Rolled Sheets and Strip—the best available anywhere.

Youngstown blends the required combination of surface finish, tensile strength and ductility into every sheet, to provide you almost continuous pressings of even the most difficult-to-form parts. Also, metallurgical quality never wavers from Youngstown's high standards because all operations from ore mining to shipping dock are rigidly quality-controlled by experts with over half-acentury of steelmaking know-how.

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Why not call your nearest Youngstown District Sales Office today, for metallurgical aid or additional information—or write directly to our Home Office.



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Producers of Quality Carbon and Alloy Steels for Over Half-a-Century

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"Would you care to scowl at our quotation, Mr. Blather?"

competitor of this retailer.

In this statute on which these actions were based it is specifically provided that nothing contained in that law "shall prevent persons engaged in selling goods, wares or merchandise in commerce, from selecting their own customers in bona fide transactions and not in restraint of trade."

On this contention of the retailer that a refusal to sell was a violation of this provision of the Robinson-Patman Act the court made the comment, "It is settled law that a seller may either refuse to negotiate or may cease doing business with a customer without running afoul of the Act. It is also clear, however, that if a seller chooses to negotiate and to sell goods of like grade and quality to competing customers, he cannot discriminate in prices or services, either to the advantage of one purchaser or to the disadvantage of another."

Then of the limitations on the prohibitory features of this statute the court added, "Congress has been liberal in enacting remedies to enforce the anti-trust legislation. However in no instance has it indicated an intention to interfere with ordinary commercial practices in interstate commerce which are bona fide and not in restraint of trade.

### Selection of Customers

"The right of a manufacturer to select customers is an essential factor in maintaining high standards of service in the handling of his products. The Supreme Court has said that it is loath to deny this privilege of selection and this court is constrained to exercise the same restraint. We have not yet reached the stage where the selection of a trader's customers is made for him by the government."

These prohibited concessions go clothed in coats of many colors. As frequent as any other are quantity discounts that lie beyond the pale of those justified by the cost differential in deliveries.

## **Quantity Discounts**

Freight charges were the subject of such a controversy between a can manufacturer and the purchaser, an Arkansas cannery. Prices were computed in shipments from Ft. Smith in that state, to some customers and in other instances, on the basis of shipments from Indiana and Illinois. As a matter of fact, all deliveries in this controversy had originated at the factories of the seller in Indiana and Illinois.

## Base Point Pricing

Of this charge of discrimination the Federal court in its decision sustaining the contention of the cannery, said, "The practice of equalizing freight with Ft. Smith was unlawful and caused price discriminations which conceivably might lessen competition."

Another and obvious practice against which this statute is directed is so-called "brokerage" or commission payments, made to the purchaser's agent by the seller. Bribes were paid to an officer of a Kentucky utility for furthering the sale of coal to that company. After the resignation of this officer from that company suit was brought by the company against the seller under this statute for the damages resulting from this violation.

### Brokerage

"The buyer," said the court in its decision against the seller, "is suing for damages, not because of receiving the benefit of discriminatory prices but because, on account of fraud, it was obliged to pay more for its coal than it otherwise would have paid in a competitive market. It is clear that

the statute prohibits the payment of brokerage by a seller to the buyer or his agent or representative or controller intermediary except for services rendered.

'With regard to the acceptance of commissions by an agent of the buyer, it is not merely the acceptance of commissions by the agent on behalf of his principal that is unlawful; it is the acceptance of commissions from a seller by an agent of the buyer in connection with the sale of merchandise in the course of interstate commerce that is also envisaged by the statute. In this case payment of commissions by the seller to an officer of the buyer in connection with the sale of the coal was unlawful and in direct contravention of the Act."

### Advertising

Another frequently adopted method of discrimination and the minimizing of competition is the undertaking on the part of the seller to furnish to one, and not to another customer services in the marketing of its product and the attendant advertising expenses.

When a national cosmetic manufacturer paid a local Little Rock, Arkansas retailer one half of the salary of a sales girl a competitor in that city bided his time for three years, then sued this favored customer and the manufacturer in the Federal courts for three times the amount thus rebated by the manufacturer as wages and advertising costs under this plan.

In sustaining the award of treble damages to this neglected retailer, as claimed by him in that action, The United States appellate court said, 'We think it must be held that a seller engaged in commerce, who furnishes clerks' services or pays clerks' salaries in equal amounts to customers competing in the distribution of its products, which amounts have no other basis or standard than the seller's discretion or favor, and as to which there is no competitive way for such customers to qualify for proportional or equal levels, is to the extent of any differences in such amounts, guilty of discrimination in the furnishing of services or facilities."

Then of the application of the statute to circumstances in this



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Company	
Address	

For More Information Circle No. 218 on Inquiry Card-Page 17



"Mr. Smith, would you help us draw up a comparison form for a makeor-buy decision on our lunches?"

particular case, the court continued, "The Federal Trade Commission has aptly expressed the situation in the cease and desist order it issued against this manufacturer-The statute affords the seller a free election in the first instance as to what services or facilities, if any, he will provide to purchasers of his products; but having elected to furnish a particular service or facility to a particular purchaser or purchasers he thereby assumes the obligation of according similar services to all competing purchasers to the extent required by the statute.

"The furnishing of a service or facility which cannot be proportionalized for the benefit of competing purchasers, or, in the alternative, the failure or refusal to proportionalize the terms upon which the services or facilities are granted, so as to make it reasonably possible for competing purchasers to avail themselves of such services or facilities, if they desire to do so, constitutes a failure to accord such services or facilities upon proportionally equal terms."

Only a few months ago a decision came before the United States Court of Appeals in which the Federal District Court in California had sanctioned the discrimination in the prices of ice cream by a blanket reduction in the Los Angeles area in which that manufacturer operated one of the largest plants of this character in the United States, leaving unchanged

the price structure elsewhere on the Pacific coast. On the ground that this reduction was a territorial discrimination, actions were brought against this manufacturer by fifteen competitors, seeking treble the amount of the damages they claimed of \$72,934.35.

In its dismissal of these actions the Federal court said of the underlying philosophy of these antitrust statutes, "Their aim is to suppress combinations to restrain competition and attempts to monopolize by individuals and corporations. In this manner they seek to maintain the freedom of commerce between the states.

### Anti-trust Statutes

"The Sherman Act condemns certain practices and their results. The Clayton Act seeks to reach contracts aiming at the result. The Robinson-Patman Act prohibits certain specific discriminatory practices. Price discrimination which seeks to restrain trade or commerce, or attempts to eliminate competition, is a violation of the Sherman Act and contracts aimed to achieve this result do violence to the Clayton Act. Concededly price discrimination, predatory in nature, is an excepted method of destroying competition.

"Price discrimination is also condemned by the Robinson-Patman Act except when made in good faith to meet a competitor's low prices. And sales made at unreasonably low prices are distinctly forbidden when made for the purpose of destroying competition or eliminating competitors."

# Legal Discrimination

These fifteen competitors of that manufacturer appealed from this judgment. A few months ago the decision holding this territorial discrimination justified and valid was made by the appelate court. In this affirmance the court made the comment on these statutes,

"Congress was dealing with competition which it sought to protect and monopoly which it sought to prevent. But even if discrimination be found it is not in and of itself denounced but only when deleterious consequences are probable, i.e., where the effect of such discrimination may be substantially to lessen competition or tend to create a monopoly in any line of commerce or to injure, destroy or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination or with customers of either of them."

### REFERENCES

15 U.S.C.A., Sec. 13

Krug v. International Telephone & Telegraph Co., 142 F.S. 230, New Jersey, June 20, 1956

Naifeh v. Ronson Art Metal Works, 218 Fed. 2d 202, Oklahoma, December 29, 1954

American Can Co. v. Russellville Canning Co., 191 Fed. 2d 38, Arkansas, July 27, 1951

Fitch v. Kentucky-Tennessee Light & Power Co., 136 Fed. 2d 12 Kentucky, June 4, 1943

Elizabeth Arden Sales Corp. v. Gus. Blass Co., 150 Fed. 2d 988 Arkansas, January 31, 1945

Balian Ice Cream Co. v. Arden Farms Co., 104 F.S. 796, April 29, 1952, affirmed 231 Fed. 2d 356, October 31, 1955 On your purchase orders...

SHIP VIA D.C. All the way!

DOWNSON DURCHASING AGENT

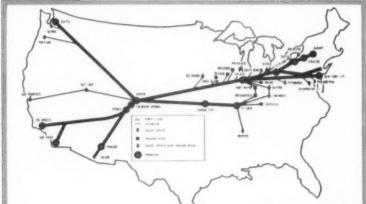
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for fastest, Safest delivery and to avoid production delays!

> **NOW...**NON-STOP, STRAIGHT-THRU 2-MAN SLEEPER CAB SERVICE"

> > Coast-to-Coast!



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#### OFF LINE SALES OFFICES:

\*DAYTON \*DETROIT \*\*FT. WAYNE \*\*INDIANAPOLIS \*\*LOUISVILLE MEMPHIS

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\*With Trailer Paul

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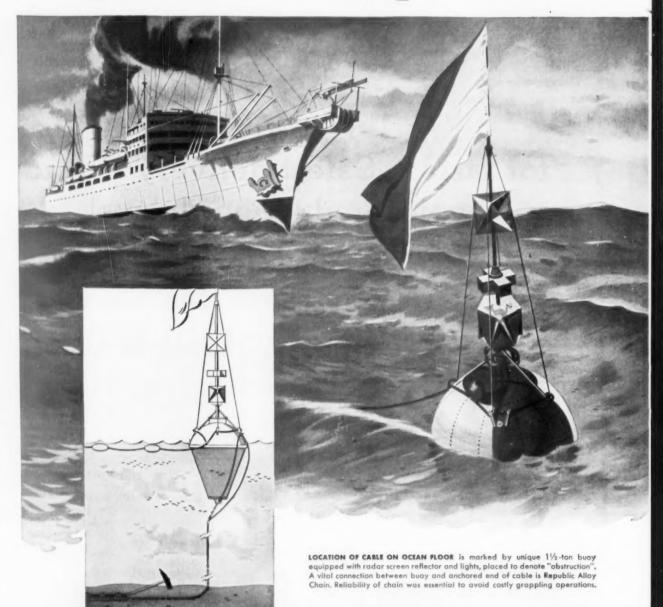
TUCSON \*\*DE KALB, ILL. \*\*ROCK ISLAND, ILL.

\*\*ROCKFORD, ILL. \*\*TOLEDO

THE ONLY COAST TO COAST CARRIER

TRUCKING CO., INC.

# Republic Alloy Chain



## REPUBLIC



World's Widest Range of Standard Steels

# helped "hold the line"

#### FOR TRANSATLANTIC TELEPHONE CABLE

A number of times during laying of the recently completed twin transatlantic telephone cable, it was necessary to suspend operations while the cableship Monarch returned to port for additional cable. Whenever Republic Alloy Chain was used, it helped "hold the line", securely anchoring a specially built marker buoy to the cable resting on the ocean floor. Result: the cable was easily recovered, spliced to the newly arrived portion, and laying resumed without

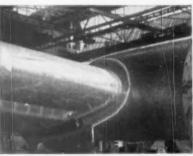
Security of the buoy and recovery of the cable depended on the built-in quality of Republic Alloy Chain. Uniform strength in every link spelled the difference between a smooth, onschedule operation and costly, grappling delays.

Attention to quality and reliability in every detail was vital to success in completing the \$42,000,000 transatlantic telephone cable. As it has in countless product and production applications in every industry, Republic Chain met every requirement with flying colors.

Whatever your chain problem or application, it will pay you to get all the facts on Republic Chain Products. Types available include fire welded, electric welded or weldless chain in high carbon, low carbon, alloy and stainless steels, or wrought iron. Simply contact your Bolt and Chain Division representative, or mail the coupon for further information.



CONTINUOUS GALVANIZED HOLDS THE LINE on costs when used for production-line products requiring severe forming. Expensive hot-dip galvanizing after fabrication can be eliminated. The tight, corrosion-resistant zinc coating of Republic Continuous Galvanized Sheet Steel will not crack, flake, or peel under any forming process permitted by the base metal. For complete information on this new production-line material, mail coupon.



TITANIUM HOLDS THE LINE on excess weight in this new commercial airliner. By substituting titanium for other metals normally used in nacelle construction, a weight savings per airplane was achieved equal to one passenger and his luggage. Strength and safety were not impaired in any way, In addition to great strength-to-weight ratio, titanium offers excellent corrosion resistance. Send coupon for details.



REPUBLIC HYDRAULIC LINE TUBING HOLDS THE where high-pressure dependability is vital. Reason is Republic's ELECTRUNITE® welding process coupled with closely controlled finishing operations. Starting with flat-rolled steel, and working to a highly restricted specification, maintains a flaw-free surface on both the O.D. and I.D., and assures a uniform wall thickness, The result is a quality tube with uniform strength and ductility, the basis of unsurpassed performance in high-pressure applications.

# STEEL

and, Steel, Products

REPU	BLIC	STEE	LCORP	ORATION		
Dept.						
3126	East	45th	Street,	Cleveland	27,	Ohio
Please	send	me furt	her infor	mation on:		

- Chain Products
- Continuous Galvanized Sheet
  Titanium and Titanium Alloys
  Hydraulic Line Tubing

Name.

Company.

Address.

Title.

For More Information Circle No. 220 on Inquiry Card-Page 17



you can use

### A Plan for Analyzing Packaging Efficiency

By J. J. Patterson Jr.

Director, Mutiwall Bag Sales
Union Bag-Camp Paper Corp.

The shrewd buyer of packaging materials looks far beyond price. He knows that he can usually buy packaging at comparable prices from several manufacturers. The difference, however, is in service and experience offered by the supplier.

We have developed a plan to give the buyer a comprehensive analysis of his complete packaging operation. This "packaging efficiency plan" includes a study of the buyer's bag design; specification control; bag construction; packaging machinery survey; and a study of materials handling throughout the user's plant.

Here is an example of how the plan has saved one large chemical company thousands of dollars:

1. Our art department redesigned the company's complete line of packages and created a "family" design. The customer reports that these related designs speed product identity and now each distinctive new bag helps merchandise the others.

2. At the time we started selling to this account, the customer was using 43 different sizes and types of multiwall bags. Our salesman helped them set up a specifications control manual which simplified the multiwall bag specifications by standardizing bag sizes. The new specifications book enabled the customer to order bags easily and accu-

rately. It also simplified his inventory control.

3. In the preparation of the specifications manual, our package engineering department recommended changes in bag sizes and construction as well as in types of bags. In one case, one of their products, a hygroscopic material, required high moisture protection. By altering the type of closure, we reduced the cost of the bags by \$8.55 per 1000. The company estimates that our recommendations for changing their existing packages saved them over \$150,000 a year.

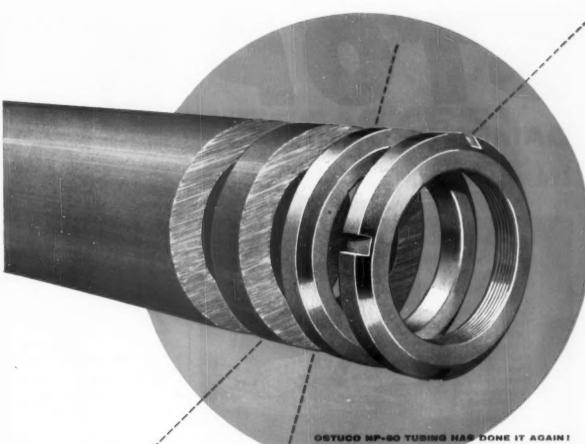
4. After a survey of the company's packaging machinery set-

(Please turn to page 146)

Artists develop designs for packages in a broad range of industries. It is part of the customer program. A switch to this open mouth bag packer enabled a company to use a cheaper bag at a higher production rate.







24% Production increase at Standard Locknut & Lockwasher, Inc. after switching to OSTUCO NP-60 tubing

This time, with a 24% production increase for Standard nut and Lockwasher, Inc., Indianapolis, Indiana. Tubing experts from OSTUCO recently recommended a switch to NP-60 Tubing specially processed for machineability for Standard's locknut and lockwasher line used in ball and roller bearing applications.

Standard components find their way into electric motors, machine tools, automotive, aircraft, farm and construction equipment. Other companies, with equally diverse applications, report similar success with NP-60. If you are machining bearings, washers, collars, or any circular part, you'll do well to check into the merits of OSTUCO's new NP-60 seamless steel tubing.

#### GET NP-60 WITH "SINGLE-SOURCE SERVICE."

New NP-60 seamless tubing comes to you with OSTUCO'S unique "Single-Source Service"-experience and facilities for design and development, production and delivery all under one roof. Get together with a tubing expert for preliminary planning on NP-60's possibilities in your product. Contact your nearest sales office or write direct to the factory.



## OSTUCO TUBING

SEAMLESS AND ELECTRIC RESISTANCE WELDED STEEL TUBING—Fabricating and Forging

#### OHIO SEAMLESS TUBE DIVISION

of Copperweld Steel Company • SHELBY, OHIO
Birthplace of the Seamless Steel Tube Industry in America

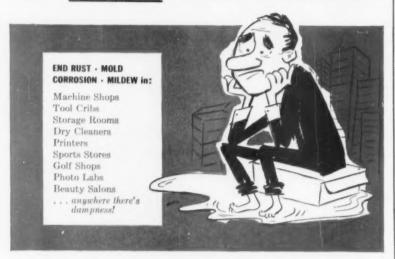
SALES OFFICES: BIRMINGHAM . CHARLOTTE . CHICAGO (Oak Park)
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PITTSBURGH . RICHMOND . ROCHESTER . ST., LOUIS
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CANADA, RAILWAY & POWER ENGR. CORP., LTD. EXPORT: COPPERWELD STEEL INTERNATIONAL COMPANY 225 Broadway, New York 7, New York

For More Information Circle No. 221 on Inquiry Card-Page 17

# STOP

# DAMPNESS DAMAGE IN YOUR BUSINESS!



## Westinghouse ELECTRIC Dehumidifier



DAMPNESS CAN COST YOU HUNDREDS of dollars in profits every year. Not only in damage, but customer good will. But, one low cost Westinghouse Dehumidifier lets you dry the air in a 10,000 cu. ft. area, protects valuable stores and tools from rust, corrosion, etc., ends costly production slow-downs!

RATED No. 11 In independent tests, the amazing Westinghouse Dehumidifier removed 31% more moisture at 44% lower cost than the 16 other brands tested. Uses no more current than a light bulb. Rolls on casters. 5-year replacement guarantee!

IDEAL FOR HOMES, TOO! Ends damp ruin, makes basements dry and usable! Ask your Westinghouse Appliance Dealer for a free trial or mail coupon!

## SURE ... IF IT'S Westinghouse

Refrigeration Specialties Division • Springfield 2, Mass.

R. S. Division,	Springfield 2, Ma	158.
		ation on your De- ny nearest Dealer.
NAME		TITLE
COMPANY		
ADDRESS		
CITY	ZONE	STATE

For More Information Circle No. 222 on Inquiry Card-Page 17



(Continued from page 144)

up, our engineers suggested that they change over to an open mouth bag packer. This made it possible for them to use a less expensive bag at a higher production rate. This idea was worth \$135,000-a-year savings to the company.

5. Close liason between our engineers and members of the company's staff have resulted in improved materials handling techniques and gains in both efficiency and economies.

The test of an expert buyer is not alone the price he pays. The real standard is value received. If you use value as your yardstick, you'd insure a greater return on your packaging dollar.

#### Cradle Truck Prevents Barrels Tipping



Morse Mfg Co., E. Syracuse, N.Y., has on the market a specially designed barrel cradle truck with curved top rails. They hold a wooden hogshead or barrel firmly in position, preventing dangerous tipping. For safe conveyance, it also has non-skid devices, located directly forward of the front wheels on the rocker, and a safety catch on the nose to prevent the barrel from sliding during loading. Ruggedly built, the truck has an 18" wheel base. It is available with four large 3" diam wheels placed on a straight axle. Height to bung of barrel is

# STAINLESS STEEL MINIATURE SCREWS

## ... and we also stock stainless steel miniature washers, nuts, dowel pins, and taper pins.

He didn't even say a word about the fact that we also manufacture miniature fasteners to the customer's specifications.



#### **ALLMETAL**

SCREW PRODUCTS COMPANY, INC. 821 Stewart Avenue, Garden City, Long Island, New York

ALLMETAL WEST COAST DIVISION 2978 Wilshire Boulevard, Los Angeles 5, California

MANUFACTURERS OF STAINLESS STEEL FASTENERS
Screws/Bolts/Nuts/Washers/Rivets/Nails/Pins/AN

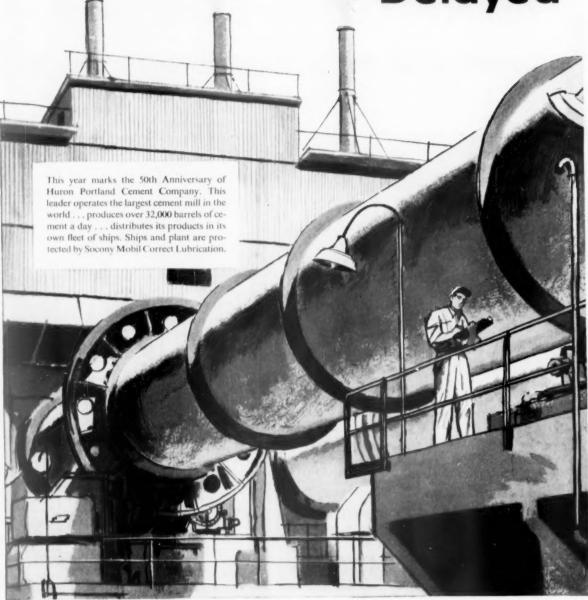
#### DIAMETERS IN STOCK

Most diameters indicated are stocked in a complete range of lengths

	#00	# O	# 1 Fine Thread	# 1 Coarse Thread
MACHINE				
SCREWS				
Milled				
Fillister				
Flat Fillister				-
Oval	"			
Binding		•		
Truss				
Pan				
Flat				
Round				
Cold Headed				
Fillister				
Flat		1		
Binding				-
Round				
Phillips				
Recessed		1		
Head				
Flat				
Round				
	-	1	-	
SET				
SCREWS				
Slotted				
Socket				
Dochet	-			
CAP				
SCREWS				
Socket				
Socket				

For detailed stock information for Allmetal miniature screws and other types of Allmetal stainless steel fasteners, send for your copy of the 52 page stainless steel fasteners Stock List and Data Book. It's chock full,

# Girth Gear Replacement— Delayed





**SOCONY MOBIL** 

Leader in Lubrication for over 91 years

#### in the Cement Industry

# Expenditure of \$8,800 Indefinitely!

#### One of many maintenance savings made by the Huron Portland Cement Company with the help of Socony Mobil

Located at Alpena, Michigan, is the world's largest single cement plant. To assure its continuous operation at minimum maintenance cost, Huron Portland Cement Company relies on a Socony Mobil Program of Correct Lubrication. Here's an example of this comprehensive service in action:

Problem: Pinion gears on four kilns were wearing excessively . . . so also were the huge girth gears. In time, girth-gear teeth became so roughened that new pinion gears would be quickly damaged when installed. How to avoid the costly job of replacing the

girth gears was the problem facing the Company.

Solution: After consultation with Huron Portland personnel, Mobil engineers recommended a special Mobil lubricant compound that cut wear on pinion gears . . . at the same time helped smooth up the girth-gear teeth. Result—girth-gear life was extended indefinitely . . . \$8,800 saved on just one kiln.

Service like this has helped this cement company continually improve profits through increased production . . . reduced maintenance costs. Perhaps it can do the same for your plant.

#### Other ways Mobil Correct Lubrication cut costs



Exceptionally long product life—4 Allis-Chalmers generators supply power for entire Huron Portland Cement plant. Same fill of Mobil D.T.E. oil has been in continuous use in one of these generators for over ten years. Units have not shut down once due to lubrication failure. In fact, latest samples show oil to be in "like new" condition . . . good for many more years.

Gear maintenance cost cut—Mobil engineers surveyed planetary-type gear sets that drive mills, kilns and other machinery. As a result, they recommended a single wide-range lubricant in place of three products formerly used. Qualities of this Mobil product eliminated periodic need to clean sludge from gear cases . . extended oil fill life 100% . . . produced savings in storage and handling.

Engineering assistance cut downtime
—Mobil engineers cooperated with
Huron Portland in investigating cause
of bearing and tooth failures on gear
reducers. It was found that gears had
been purchased from different suppliers and that tooth sizes varied.
Mobil suggested purchasing new gears
from one supplier. Mobil engineers
also suggested that grooving in pressure area of split-bushing bearings be
removed. When this was done, gear
reducer trouble ceased . . . downtime
was sharply cut.

Complete Mobil service—Supplying Huron Portland with top-quality lubricants is only a part of the comprehensive Mobil program. Mobil field personnel, engineers and sales representatives work closely with Huron Portland's maintenance personnel. They conduct in-plant training courses, make analyses of products in use, submit periodic reports on benefits achieved. No wonder records show a continual reduction in maintenance costs over the years.



## Correct Lubrication

A <u>proved</u> program to reduce maintenance costs

SOCONY MOBIL OIL COMPANY, INC., and Affiliates Magnolia Petroleum Co., general Petroleum corp., mobil overseas oil Co., Inc.



### and cost-saving ideas

### No More Time Out to Dress Grinding Wheels

Joining together their technical know-how, Jones & Lamson Machine Company, Springfield Vt., makers of machine tools and Koebel Diamond Tool Company of Detroit, specialists in abrasive equipment, have made possible, for the first time, the complete automation of production grinders. The big stumbling block, hitherto, to automation was how to compensate for grinding wheel wear. Grinder output had to be

frequently interrupted to re-dress the wheel to its proper shape and reset it closer to the work.

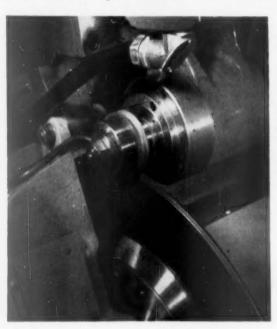
Two problems had to be solved in order to eliminate time out for wheel dressing: (1) a cutter had to be produced that would accurately and continuously "machine" a grinding wheel while it was working; (2) means had to be devised for keeping the cutter sharp and accurate almost indefinitely. It involved cooperative engineer-

ing by the machine tool builder, the abrasive wheel manufacturer and the diamond tool manufacturer.

Koebel's major contribution to solving the problems was in developing a method of accurately cementing thousands of diamond particles into the surface of a precision - formed cutter body made of powdered metal. To enable this to be done, several major advances had to be registered as to both powdered metallurgy and multiple diamond setting.

Jones & Lamson in the meantime developed a mechanism to cool and drive these cutters at a peripheral speed somewhat faster than that of the grinding wheel in order to obtain the proper cutting action. This made it possible to maintain correct wheel shape automatically. The mechanism also advances both cutters and grinding wheel as wheel diameter decreases to keep the same dimensions on the work produced. In addition, dressing can be intermittent, if desired, instead of continuous. Besides making possible the automation of production grinders, the development eliminates all time out for truing and dressing worn wheels on nonautomated grinders.

Circle No. 38 on Inquiry Card-Page 17



Completely automated grinding is possible because the wheel is continuously dressed with no lost production time.

"Call L.B. FOSTER CO.

THEY HAVE

PIPE"

steel, alloy, and seamless carbon pressure pipe ...they'll deliver fast—from warehouse stocks

Yes—"Call L. B. Foster" is a phrase you hear more and more among today's pipe buyers. Our ever-growing warehouse stocks are a good bet for finding the exact pipe you need—and in all the quantities you may need, including the extra-large sizes and the hard-to-get items. Try "Faster-from-Foster" service for all your pipe requirements—seamless, seamless carbon pressure pipe, seamless alloy, prime tested and structural—½" thru 36"—and now aluminum and PVC pipe, valves, fittings.

Call or wire today . . . to your nearest Foster office.





One of the nation's largest pipe stocks—in six Foster warehouses—all sizes, 1/8" thru 36".



Foster trucks can deliver to your plant or to your job site—our specialty is service.



Carload orders for immediate delivery—from Foster warehouse stocks—or direct-mill.



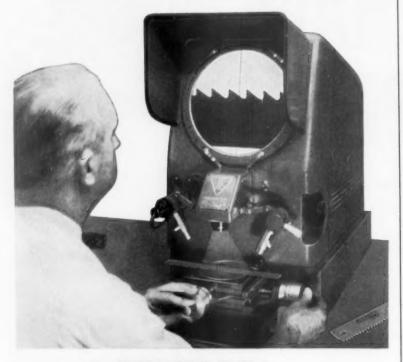
PIPE · RAILS · STEEL-SHEET PILING · PIPE PILES · H-BEARING PILE · VALVES & FITTINGS



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# CREATIVE PURCHASING\* demands the VERY BEST

#### THIS IS THE BLADE



## THE MILFORD® ALL-HARD REZISTOR®

For production cutting, there is no finer power hack saw blade available anywhere. MILFORD's unique "Multiple-Pass" milling produces sharper, more uniform teeth. Every blade is precision set—expertly heat treated to a high hardness and tough, fine grain structure. The MILFORD All-Hard REZISTOR assures you fast and accurate cutting plus longer blade life.

SEE FOR YOURSELF... how MILFORD performance will improve your cut-off work. Ask your MILFORD distributor to arrange—without obligation—a demonstration on the most difficult job in your plant.

\*The modern concept of PURCHASING as a positive, profitcreating function.



BUY FROM YOUR MILFORD DISTRIBUTOR . . , a local businessman who stocks the tools and equipment you need, You'll SAVE TIME, CUT BUYING COSTS and REDUCE INVENTORIES.

THE HENRY G. THOMPSON & SON COMPANY . NEW HAVEN 5, CONNECTICUT

Saw Blade Specialists for Over 80 Years

HACK SAW AND BAND SAW BLADES . HOLE SAWS . GROUND FLAT STOCK

For More Information Circle No. 226 on Inquiry Card-Page 17



#### Gage Helps Increase Centerless Grinder Output



A gage for continuously measuring the output of various types of centerless grinders and visually indicating any trend toward outof-tolerance work has been developed by Federal Products Corp., 1144 Eddy St., Providence 1, R.I. It enables as many as three or four machines to be easily and adequately supervised by a single operator. So that the gage will respond to workpiece size only. ignoring local irregularities such as spaces between workpieces, oil holes, etc., the gage incorporates time delay response, adjustable with speed of work travel. Dial is graduated in .000050".

Circle No. 39 on Inquiry Card-Page 17

#### Casters with Wheel Brakes

4" and 5" casters have been equipped by the Bassick Co. of Bridgeport, Conn., with a wing type wheel brake. The units, trade named Diamond Arrow, are widely used in plate or stem construction on light work stands, portable ladders, conveyor sections and other mobile equipment. The brake enables the caster wheel to be securely locked or released with touch of the toe, broadening the use of these inexpensive, general duty casters.

Circle No. 40 on Inquiry Card-Page 17



DURAPRENE AIR HOSE... oil resistant, flexible... for medium pressures.



IDEAL WELDING HOSE... for high-pressure service. Two examples of the complete line of quality products available from your local Hamilton Distributor.



Write today for more information and literature.



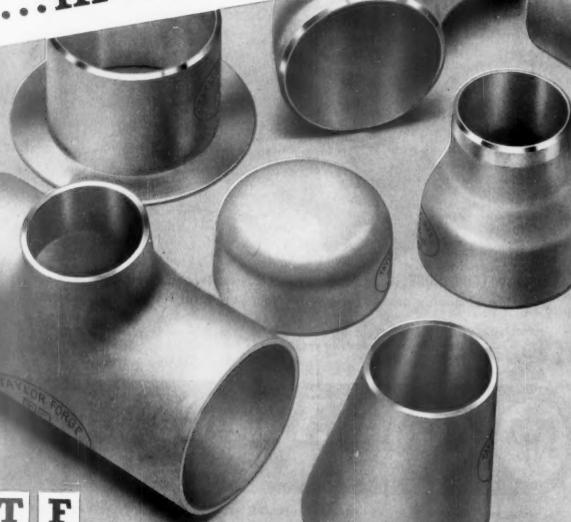
MANUFACTURING CORPORATION . Trenton 3. N. J.

Division of Acme-Hamilton, Manufacturing Corporation

ATLANTA . CHICAGO . HOUSTON . PITTSBURGH . INDIANAPOLIS . LOS ANGELES . NEW YORK . SAN FRANCISCO

For More Information Circle No. 227 on Inquiry Card-Page 17 For More Information Circle No. 228 on Inquiry Card-Page 17-JUNE, 1957

in stainless steel too



# Welding Fittings and and Forged Flanges



The complete line . . . the quality line . . . whatever you need . . . here it is . . .

\* Schedules 5S—10S—40S—80S as well as all sizes and thicknesses covered by Standards in carbon steel.

\* Seamless\* WeldELLS—Tees—Reducers
—Lap Joint Stub Ends—Caps—Crosses—
Flanges—regularly furnished in stainless
steel types 304—304L—347—316—316L.

Details regarding other types of stainless
and corrosion resistant alloys gladly supplied upon request.

\*NOTE: Schedules 5S and 10S 90° and 45° WeldELLS are furnished seamless in sizes through 6". Schedules 40S and 80S are furnished seamless in all sizes.

#### ...TRADITIONALLY DEPENDABLE

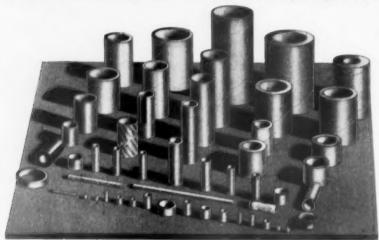
#### Taylor Forge & Pipe Works

General Offices and Works: P. O. Box 485, Chicago 90, Illinois Plants at: Carnegie, Pa., Gary, Ind., Houston, Texas, Fontana, Calif., Hamilton, Ont., Canada

District Sales Offices: New York, Boston, Philadelphia, Pittsburgh, Atlanta, Chicago, Houston, Tulsa, Los Angeles, San Francisco, Seattle, Toronto, Calgary.

To take full advantage of both product excellence and fine service, patronize your local Taylor Forge Distributor.

# CLEVELAND CONTAINER



#### PRODUCES TUBING TO MEET EVERY NEED!

Tubing of every kind, type and size, in diameters up to 24" . . . in any length . . . in light or heavy wall . . . manufactured from chipboard, kraft, jute, fish paper, etc., as required.

Plain or printed . . . wax impregnated . . . lined with special greaseproof or anticorrosive papers. Also investigate Cleveland Container tubing for electrical uses.

Shipments made promptly from the plant nearest you.







Why pay more? For quality products . . . call CLEVELAND!

PLANTS AND SALES OFFICES:

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SALES OFFICES NEW YORK CITY WASHINGTON, D. C. ROCHESTER, N. Y.

6201 BARBERTON AVE., CLEVELAND 2, OHIO

ALL-FIBRE CANS - COMBINATION METAL AND PAPER CANS . SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

OGDENSBURG, N.Y. ABRASIVE

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CHICAGO

MEMPHIS

LOS ANGELES PLYMOUTH, WIS

JAMESBURG, N. J

CLEVELAND CONTAINER CANADA, LTD.

WEST HARTFORD,

For More Information Circle No. 229 on Inquiry Card-Page 17

## new products

Fitting Drops Power Cables At Any Point



A fitting has been developed by T. J. Cope, Inc., Collegeville, Pa., to accompany its cable trough system for the support of power and control cables. It permits cables to be dropped out at any point in the run to connect with motors, etc. There is no need to specify in advance the exact location of the drop out, because a hole can be cut in any section of the trough at any time before, during, or after installation. The wide range of fittings available simplifies installation and provides a full range of flexibility around obstructions.

Circle No. 41 on Inquiry Card-Page 17

#### Corrosion-Resistant Non-Sticking Tape

Cementable, glsss cloth reinforced and unsupported Teflon tapes are announced by Continental-Diamond Fibre Corp., Newark, Del. The tapes can be bonded with ordinary adhesives to vitually any surfaces, including metal, plastics, glass, wood ceramics and rubber. Produced in widths from 1/4" to 12" and in thicknesses from .002" to .060", the tapes are available with one or both surfaces treated for adhesion. The cementable surface is produced by treatment with a sodium-ammonia mixture. These Teflon tapes have an unlimited number of applications: chute linings, chemical linings, etc.

Circle No. 42 on Inquiry Card-Page 17

### they're both <u>two</u> diameter drills<sub>\*\*</sub>...

BUT WHICH ONE SHOULD YOU USE

# A MORALLY SUBLAND

Mohawk Sublands are the modern, practical answer to faster, more accurate and economical drilling of multiple diameter cavities.

One Mohawk Subland drill will outwork and outperform two, three, four or more ordinary step type drills . . . and do the job better.

Why? Because Mohawk Sublands last longer, stay accurate through multiple regrinds and reduce hole costs. They quickly pay for themselves in man hours, equipment and tool dollar savings. And . . . they're available in an amazing range of "off the shelf" size-optional sizes and types.



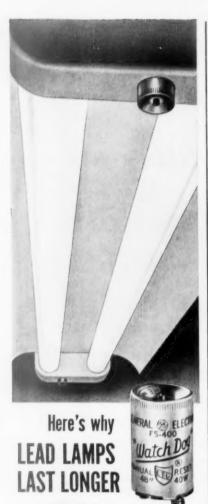
#### Facts For Free!

Write, wire or 'phone today for your free copy of the big illustrated brochure Sublands vs. Step tool operations. It's yours for the asking...and if you're interested in combination drilling operations, you'll find dozens of ways to save your equipment dollars.

NORMAL DELIVERY ON MOHAWK SIZE-OPTIONAL SUBLANDS TEN DAYS FROM RECEIPT OF ORDER!

world's largest producers of Sublands

Mohauk Tools, Inc.



with G-E Watch Dog\* STARTERS

In most two-or-three-lamp fluorescent fixtures the life of the lead lamp is shortened by voltage surges occurring before the lamp cathodes are adequately preheated. The new G-E-FS-400 starter has a special glow-lamp switch which assures proper preheat of these lead-circuit lamps.

As a result, this premature burnout of lead lamps is prevented. Maintenance costs are reduced and group relamping programs are made even more practical.

This new FS-400 starter, in addition, offers all the other advantages of G-E Watch Dog starters. It automatically cuts failing lamps out of operation, protecting ballasts and fixture wiring and eliminating lamp blinking. During relamping, it eliminates the usual "waiting" period required by automatic reset starters and speeds up the relamping job. And, one Watch Dog starter will outlast up to ten ordinary starters! Wiring Device Department, General Electric Company, Providence 7, R. I.

\*Registered Trade-mark of General Electric Co.

#### GENERAL @ ELECTRIC

For More Information Circle No. 231 on Inquiry Card—Page 17



Teflon-Insulated Hook-Up Wire



Silver-plated hook-up copper wire is now available in sizes 16 to 28 covered by the extrusion of a controlled thickness of Teflon. This assures a pinhole-free coating for full utilization of the product's excellent dielectric properties. The hook-up wire meets National Aircraft Standards and Government Specifications MIL-W-16878-B, both Type E(600 v) and Type EE (1000 v). It can be supplied for coding in any one of 16 colors. Spiral striping in various colors can also be supplied by the manufacturer, Haveg Industries, Inc., 900 Greenbank Rd., Wilmington 8, Del., to meet customer requirements.

Circle No. 43 on Inquiry Card-Page 17

#### Distribution Center Uses 42% Less Space

General Electric Company of Schenectady announces that its Specialty Transformer Dept. is producing a single-unit integral distribution center that requires up to forty-two percent less space than conventional load centers. It combines on one piece all three sections necessary for load center applications: incoming line, transformer and outgoing feeder. It is compact enough to pass through a normal size factory door in upright position. It is available in standard ratings of 75, 112.5, 150 and 225 kva.

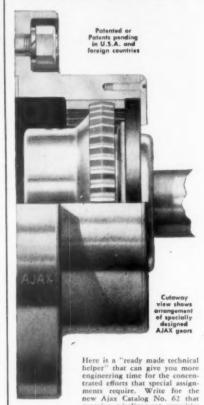
Circle No. 44 on Inquiry Card-Page 17



Self-aligning

#### DIHEDRAL COUPLINGS

Give Design Engineers
An Immediate Source
of Product Improvement



of every coupling size and type in the complete line of Ajax Dihedral Couplings. Why spend valuable time duplicating data already established by thousands of proven, field tested applications.

Ajax Dihedral Couplings handle unavoidable shaft misalignment, angular and offset, up to a total of 12°, Teeth can be cut to handle greater misalignment capacities on special order.

Get the facts on how manufacturers of presses, machine tools, rolling mills, cranes, earth moving and many other direct connected machines are

and many other direct connected machines are simplifying design, cutting manufacturing costs and improving product performance with Ajax Dihedral Couplings.

Write today for you personal copy of Bulletin No. 62.



AJAX FLEXIBLE COUPLING CO.INC.

For More Information Circle No. 232 on Inquiry Card—Page 17

PURCHASING





#### ... there's no in-between!

That's why the brake and clutch linings you use are important . . . because brakes and clutches are a key factor in performance, and performance is *the* main basis for judging the value of your product.

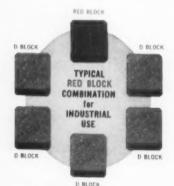
World Bestos RED BLOCK linings are the best you can use . . . best because they're the *only* linings that supply *guaranteed no-fade* performance even under stepped-up operating conditions. RED BLOCK brakes give "pinpoint" stopping power at highest operating tempera-

tures... outlast other brake blocks by margins of 600% and more!

Your customer saves in reduced downtime, lower maintenance costs, higher production efficiency.

#### You save customers

Write for full information and illustrated folder on RED BLOCK Combinations for industrial uses.



#### WORLD BESTOS NEWCASTLE, INDIANA

DIVISION OF THE

Firestone TIRE & RUBBER COMPANY

Industrial and Automotive Brake Blocks and Linings • Transmission Linings • Clutch Facings • Vibration Controls • Sheet Packing

For More Information Circle No. 234 on Inquiry Card-Page 17



#### Lubricant Stops Carbon Fouling Hot Machinery



Keystone Lubricating Co., 3100 N. 21st St., Philadelphia, Pa., says that oil carbon deposits in machines operating at high temperatures vanish, when its specialized lubricant is used. The oil, known as Keystone No. 49 Light, resists oxidation, sludging and breakdown when subjected to exacting conditions. While primarily developed for air compressor use, its low carbon content and antigumming features suit it for such uses as ring bearings in electric motors, multiplate friction clutches, drying oven conveyor chains or textile tenter frames.

Circle No. 45 on Inquiry Card-Page 17

#### No Storage Battery Breakage Trouble

A new material for industrial storage battery cell containers and covers, that virtually eliminates battery breakage is announced by C & D Batteries, Inc., of Conshohocken, Pa. As a result of using the new materia., trade-named "Hi-Impac," dama se to battery cells from dropping, collision between trucks or from the impact of heavy objects falling on the battery is practically eliminated. This greatly reduces the necessity of shipping the battery for repairs. In field testing, no replacement of the new material has been required in a year and a half.

Circle No. 46 on Inquiry Card-Page 17

PURCHASING

#### How to be sure of swift shipping



Ed's heart was quite heavy 'cause shipping had slowed And his boss used to ride him and add to the load



Eddie's walking on air now . . . no longer depressed His dependable shipping is RAILWAY EXPRESSED!

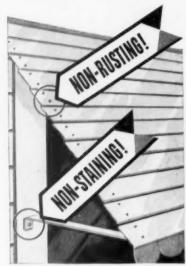
# The big difference is

No one can afford slow shipping! It costs too much money, wastes too much time, and loses too many customers!

That's why shipment by Railway Express is such a good buy—you can always depend on speedy deliveries. And you get coverage no other company can match, for Railway Express reaches some 23,000 American communities. Now, with Railway Express' new World Thruway Service, you can speed shipments to and from almost anywhere in the world! So, whether you're sending or receiving, here or abroad . . . always call Railway Express, the complete rail-air-sea shipping service.



### How Alcoa Aluminum Fasteners make good awnings even better



Alcoa® Aluminum Fasteners guard your reputation for quality aluminum awnings. They insure against both galvanic and atmospheric corrosion. They provide perfect color match and lasting good looks. Specify Alcoa Fasteners for assembly and installation. Your local Alcoa distributor carries complete stocks for every requirement. He is listed in the Yellow Pages of your telephone directory.





Your Guide to the Best in Aluminum Value

Fill out coupon for facts, sample

our coupon for facts, samples
Aluminum Company of America 2248-F Alcoa Bidg., Pittsburgh 19, Pa.
Gentlemen: Please send complete specification data and samples of Alcoa Aluminum Fasteners.
Name
Title
Company
Address

For More Information Circle No. 236 on Inquiry Card—Page 17

## new products

Automatic Power Feed Drill Press



Automatic power feed has been incorporated in the design of a new electro-magnetic drill press. While the magnetic base holds the press in position, the power feed makes it possible for the operator to run the drill point down to the center punch mark, turn on the automatic feed, and let the drill do all the work. The power feed can be engaged or disengaged at any time during drilling. Increasing production many times over previous methods, it drills up to 11/4" and taps 1" holes. It is made by Portomag, Inc., 1511 E. Nine Mile Rd., Ferndale 20, Mich.

Circle No. 47 on Inquiry Card-Page 17

#### Multi-Purpose Grease Cuts Inventories

Designed to provide superior lubrication under conditions which often require a variety of special greases, a lithium based multi-purpose grease has been engineered by Gulf Oil Corp., Gulf Bldg., Pittsburgh 30, Pa., to meet nearly all industrial lubrication requirements. It meets the challenge of high and low temperatures, the action of water, high speed bearing action and long storage. The single-product, multi-purpose grease reduces errors in application, cuts lubrication costs and simplifies storage, handling and inventory.

Circle No. 48 on Inquiry Card-Page 17



#### More built-in EXTRAS

for more service...
more convenience...
more value!



### NO NECK CRANING with a Cordley!

It's easier to drink from a Cordley! Bubbler jets are placed to put the water flow near and parallel to the front for extra convenience.

### CORDLEY OFFERS ALL THESE FEATURES... and many more!

- · Solid stainless steel splash-proof top
- Squirt-proof bubbler jet
- Fully sealed refrigeration system
- 7-point thermostat
- Contamination-proof refrigerant coils bonded externally
- Extra service connections for both glass filler and remote outlets
- · Attractive, adaptable styling
- · Generous 5-year Guaranty



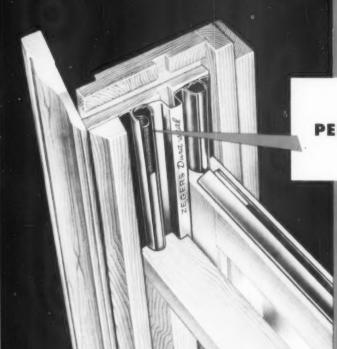
There's a Cordley cooler to meet any drinking water requirements!

Valuable Free Bulletin . . .

"HOW TO SELECT A WATER COOLER"
Write Today!

#### CORDLEY & HAYES

443 Fourth Avenue, New York 16, N. Y.
For More Information Circle No. 237
on Inquiry Card—Page 17
For More Information Circle No. 238
on Inquiry Card—Page 17->



GOOD PERFORMANCE HERE



BEGINS HERE

#### ...that's why Zegers, Inc. specify KEYSTONE GALVANIZED SPRING WIRE

The above illustration shows a double hung window equipped with Dura-Seal combination metal weather-strip and spring sash balance manufactured by Zegers, Inc., Chicago, Ill. Heart of the successful operation of this quality product is its spring balance. Not only must it have exactly the right tension for easy window operation, but must withstand countless flexings over a long period of time. Equally important, it must be easy and economical to produce.

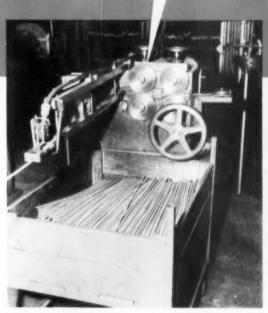
Keystone Galvanized MB Spring Wire is preferred at Zegers for these reasons: Keystone has more consistent uniformity of composition, tensile and diameter—hence less trouble in their spring machines. That's because Keystone's unique method of cold drawing after galvanizing produces a dense, smooth coating free from flaking.

If you use wire to make your products, it will pay you to talk over your needs with your Keystone representative. For more information, send us the coupon below. Tell us how we can serve you.

Keystone Steel & Wire Company, Peoria 7, Illinois

KEYSTONE

WIRE FOR INDUSTRY



Hour after hour, quality springs pop out of this spring machine. The uniformity of Keystone's drawn Galvanized MB Spring Wire assures long, trouble-free runs.



Keystone Steel & Wire Company Peoria 7, Illinois

Brand New . . . COLD HEADING FACTS FOLDER . . . send coupon today! New folder discusses uses, applications, methods, technical facts, wire requirements.

Nome Eitle

Company

. . .

City\_\_\_\_State





## new products

#### Vitreous Resistors Operate Uniformly



General Electric, Industry Control Dept., Roanoke, Va., is now producing a full line of vitreous enameled resistors covering the range from 5 to 200 watts. Of both fixed and adjustable types, the resistors are available with a wide variety of mounting arrangements such as fuse clip, bracket, through-bolt, hot feet, and screw base. The units are built with a low temperature coefficient resistance wire that assures uniform operating conditions, and high tensile strength terminals that assure proper expansion. "Hot spots" are eliminated, reducing resistor burnouts.

Circle No. 49 on Inquiry Card-Page 17

#### Braze-Hardening Carbide Tools

Whitman & Barnes, Plymouth, Mich., is using a special brazinghardening process in making their line of carbide tools. The process utilizes a special high temperature brazing alloy and scientifically controlled furnace procedures and equipment. This enables carbide tip to be brazed at the time the high speed steel body is hardened. This is said to result in uniform body hardness and carbide tips that will not loosen due to braze failure. Also, these carbide drills can be used for dry drilling of cast iron without risk of braze softening or

Circle No. 50 on Inquiry Card-Page 17

PURCHASING



## for dependable deliveries of cold rolled specialty steels

## -call CRUCIBLE

Crucibie is geared to give you reliable, on-time deliveries of a wide variety of cold rolled specialty steels - carbon spring, alloy strip . . . coils or cut lengths . . . in the size, finish and temper you

And you're sure of quality from Crucible - fine finish . . . better edges , . . improved flatness.

So, for prompt deliveries, timed to meet your production schedules-call Crucible. And, for handy reference - mail the coupon for your free copy of Crucible's 32-page fact-filled book on cold rolled specialty steels. Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.

Crucible Steel Company of America The Oliver Building, Mellon Square, Pittsburgh 22, Pa.

I'd like a copy of your 32-page booklet on cold rolled specialty steels.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

For More Information Circle No. 240 on Inquiry Card-Page 17

JUNE, 1957



# Uncover new standards of bearing quality with SEALMASTER



#### **BALL BEARING UNITS**

The instant you lift the lid on a SEALMASTER carton you've taken a step in the direction of quality. Not till you've experienced the hours of continuous, trouble-free performance SEALMASTER Ball Bearing Units provide, however, are you really cognizant of the advantages of this quality line.

Here's an exclusive combination of features found in no other bearing units! And here's real quality control, too—the kind you insist on within your plant.

Whether the bearing units you buy are for the products you build or operate—it'll pay you to discover the advantages of SEALMASTER. Factory Representatives and Distributors in all principal cities.

Write today for Bulletin 454





FIRM	
STREET	
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GIIY	STATE

SEALMASTER BEARINGS A DIV. OF STEPHENS-ADAMSON MTG. CO. 51 RIDGEWAY AVE., AURORA, ILL.
For More Information Circle No. 241 on Inquiry Card—Page 17

## new products

#### Dust Respirator Filters More Efficiently



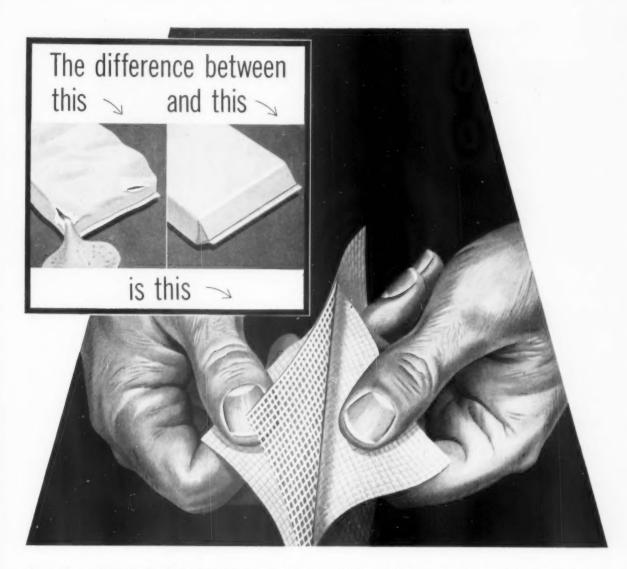
A respirator, using a filter of treated telt, is said by its manufacturer, Ray-O-Vac, Willson Products Div., Reading, Pa., to offer higher filtering efficiency and longer life than any approved filter on the market. It has no metal parts to dent or scratch, and no exposed plastic parts. The headband is attached to front of facepiece to provide a reverselever action for a firmer, safer fit against the face. Positiveaction inlet and outlet valves insure uninterrupted ease of breathing.

Circle No. 51 on Inquiry Card-Page 17

#### Silicone Rubber Packing Securely Seals

The Garlock Packing Co., Palmyra, N.Y., has on the market a complete selection of silicone rubber packing materials, suitable for many applications because of their resistance to aging, sunlight and ozone and a low compression set. They form excellent sealing materials as they withstand high and low temperatures up to 300 F (in some cases to 500 F) and down to -70 F. They also have excellent dielectric properties and good resistance to low swell mineral oils at high temperatures as well as various chemicals. Typical silicone products include diaphragms, gasketing, oil seals, rings, etc.

Circle No. 52 on Inquiry Card-Page 17



## Avisco Rayon in scrim fabrics adds strength of steel mesh, flexibility of fabric to laminates and films

As a support for films, scrim fabric of Avisco rayon has an incredible tear strength and durability that makes tents, tarpaulins, awnings—practically every kind of covering—almost indestructible. It isolates puncture breaks immediately, makes possible on-the-spot repairs.

As a reinforcement for laminates, it permits the wrapping of products of every conceivable shape. This matchless flexibility is due to *creping after lamination*, which allows for extreme distortion in laminates without breaking or tearing. Creping also reduces areas of surface contact, so that abrasion

damage is minimized.

The extra strength and impact resistance also result in substantial savings in wrapping and shipping costs. Fewer layers of wrap are needed in bagging such products as cement, fertilizer, and other granular materials. That means less weight to ship, lower freight charges.

Scrim of Avisco rayon is a "magic ingredient" that can open up markets overnight. By "upgrading" films and laminates, it creates a new world of uses for these products.

Want to know more about scrim fabrics of Avisco rayon and what they can do for your products? We'd be glad to help. The technical services of American Viscose are yours for the asking. Just fill in the coupon and send it in. You'll hear from us immediately.



Name_			
Address			
Compan	71		
Interme	tion wa. ted		

AMERICAN VISCOSE CORPORATION 350 Fifth Ave., New York I, N. Y.

# There's extra profit in BARREL FINISHING

#### with Oakite

### "media-matched" compounds

Boost the savings you get from barrel finishing by speeding up the work. Oakite "media-matched" compounds give you a remarkable step-up in the efficiency of your barrel finishing operations.



Are you working with steel? Brass? Aluminum? Special alloys?



What size parts are you finishing? What shape?



Are you burnishing? Deburring? Cutting with steel balls, aluminum oxide, granite chips, sand?



Do you have to remove tarnish, heat-scale, rust? How hard is your water?

With so many factors to consider, it takes a full line of "media-matched" compounds... and long experience in metal finishing... to pick the best material and method for the job.

That's where Oakite comes in.

Talk to your local Oakite Technical Service Representative about pre-cleaning, water level, media-to-work ratios, barrel speeds, drying techniques... and meanwhile, for free bulletin on barrel finishing, write to Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.



Technical Service Representatives in Principal Cities of U. S. and Canada
For More Information Circle No. 243 on Inquiry Card—Page 17



#### This Broaching Machine Is Really Big



The first machine that puts broaching in the giant class of machine tools, a 240"-stroke electro-mechanical drive horizontal unit, has been developed by The Lapointe Machine Tool Co., Hudson, Mass. The 50-foot machine broaches the "pine tree" holding slots in the periphery of the gas turbine wheels of the 16,500 kw gas turbine engine. It broaches a slot 1.6" deep and up to 5" rim thickness, removing 150 lb of metal per wheel. The actual broaching in the case of the wheel with the big form, with a total of 90 slots, is 2-1/3 hours. Circle No. 53 on Inquiry Card-Page 17

#### Resin Makes Compound Easier to Process

The Chemical Division of Goodyear Tire & Rubber Co. of Akron 16, Ohio, has developed a medium viscosity polyvinyl chloride resin, Pliovic S70, which provides easier processing compounds. Fluxing at lower temperatures than many higher weight resins, it can be calendered, extruded or injection molded. The small-particle size resin (average size-40 microns) is expected to find major application in the calendering of film and sheeting. It is also expected to find applications in extruded cove base molding and a variety of injection molded items.

Circle No. 54 on Inquiry Card-Page 17

# What's special about

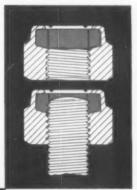
this STOP NUT?

Several things make this nut unusual. For instance, you can "stop" it at any position on the threaded length of the bolt . . . or wrench it tight against the work where it protects bolt threads against corrosion and prevents liquid leakage. No matter where you leave it on the bolt, it will remain tight in that exact position, even though you subject it to heavy vibration and shock loads. But use a wrench on it and it comes off as easily as it went on. The red locking collar is nondestructive-does not gall bolt threads or remove plating. You can remove it and re-use it again and again.



#### What gives it its grip?

- 1 The locking collar is unthreaded and elastic. It has an inside diameter smaller than the major diameter of standard bolts.
- 2 The bolt impresses a mating thread into the collar and the resulting compressive forces exert a constant friction grip on the bolt....



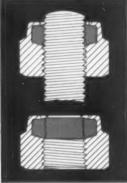
- 3 and exert a downward thrust bringing the lower flanks of the bolt thread into firm metal to metal contact with the matching nut threads, eliminating normal axial play.
- 4 Nut is removable and reusable . . . the Red Elastic Collar retains its grip after repeated usage.

#### Will it hold under ALL conditions?

The locking principle of the Elastic Stop® nut has been tested and proved by over 25 years of actual field service. Elastic Stop nuts are used on locomotives . . . and pile drivers. They fasten hedge shears and harvesters, drilling rigs and washing machines, trucks and roller skates. And no Elastic Stop nut customer has ever stopped using them because of unsatisfactory performance.

#### What about sizes and materials?

Elastic Stop nuts are available from a watchmaker's 0-80 all the way to 4"-in materials that include stainless steel, brass, aluminum and other alloys. Protect your product with "fastener insurance." Try Elastic Stop nuts on trouble spots, whether to protect expensive heavy equipment from costly downtime or to guarantee the accuracy of delicate electrical equipment by maintaining precision adjustments. We'll supply free test samples.





#### **ELASTIC STOP NUT** CORPORATION OF AMERICA

Dept. N82-615, 2330 Vauxhall Road, Union, N. J.

Please send the following free fastening information:

ELAS	TIC	STOP	nut	bulletin

Here is a drawing of our product. What self-locking fastener would you suggest?

N	g	103	n	0	
F	ir	e	6		

#### SPRING PURCHASING

made easier...



The Spring Division of John Chatillon & Sons is set up to make your job easier.

Coordination between the Chatillon Sales Department and their Spring Engineers makes it possible for you to receive your spring requirements with a minimum of delay.

For unexcelled spring service, send your blueprints to John Chatillon & Sons for study and recommendation. We manufacture all types of springs, utilizing all spring metals and alloys, at competitive prices. Write to Department P-4.



85 CLIFF STREET, NEW YORK, N. Y

Manufacturers of Precision Springs and Force Measuring Instruments Since 1835.

For More Information Circle No. 245 on Inquiry Card—Page 17

## new products

Trucks for Manual or Drag-Line Operation



A line of 4-wheel platform trucks is available from Nutting Truck & Caster Co., 1201 W. Division St., Faribault, Minn., designed for either manual or dragline operation. They can be used in warehouses, manufacturing or assembly plants and in motor and freight terminals to fill the need for materials handling equipment capable of longer service. The decks are of replaceable hardwood. Racks are of vertical and horizontal strap braced steel angle, all welded into rigid units. If desired for powered dragline operation, the trucks are available with chain or cam operated tow pins for under-floor draglines and with chain and hook or telescoping masts for over-head draglines.

Circle No. 55 on Inquiry Card-Page 17

#### Foundry Parting Liquid

A light, even coating of its foundry liquid parting agent is said by its maker, Frederic B. Stevens, Inc., Detroit 16, Mich., to last for from 20 to 60 molds, when sprayed over the surface of match-plates or patterns. A new spray can package offers a convenient way of applying the liquid for small jobs.

Circle No. 56 on Inquiry Card-Page 17



There's a lamp in the amplex

line for...
Lighting
High Bays
in Dusty or
Smoky Areas



THE AMPLEX HI BAY R-57 needs no separate reflector. Pure silver reflecting surface is hermetically sealed in—never needs cleaning. Cuts maintenance costs—gives high lighting intensities for excellent working conditions, throughout-long-burning life.

There's a lamp in the amplex line, too, for every lighting need in your plant. Direct Reflectors and Concentrators for higher-intensity localized lighting; Indirects (bowl silvered) for drafting rooms; Infra-Reds for industrial heating and baking; Mercury Vapor Lamps for maintained light output up to 6,000 hours—your distributor carries them all.



Write for catalog on the complete amplex lighting line.

amplex Corporation Dept. P657 111 Water Street Brooklyn 1, N. Y.

For More Information Circle No. 246 on Inquiry Card—Page 17 For More Information Circle No. 247 on Inquiry Card—Page 17→

# Nothing Cuckoo about this clock!

You may not need clock drives, but time (production time) is a problem everywhere—and that calls for the most dependable, most efficient use of electric drives—like here! This clock, with 300 lbs. of hands and four 24-foot dials is powered by a Master Gearmotor driving a precision gear train. With that accurate Master drive, here's a one-jewel clock!

Are you sure you've got the right answer to your drive requirements? Master components can be integrated in any combination to give you the right horsepower, right shaft speed, right mounting features, in a single, efficient, compact unit. Now's the time to let us prove it.



Features

MASTER ELECTRIC MOTORS 60 cycle, 1 phase Master Right Angle Gearmotor supplies main-drive with a synchronous output speed of 30 R/P M

ANOTHER DRIVE REQUIREMENT MEETS ITS

Motor Ratings 48 to 400 H.P. All phases, voltages, frequencies.

Motor Types ..... Squirrel cage, slip ring, synchronous, repulsionstart induction, capacitor, direct current.

Construction Open, enclosed, splash-proof, fan-cooled, explosion-proof, special purpose.

Speeds Single-speed, multi-speed, and variable speed.

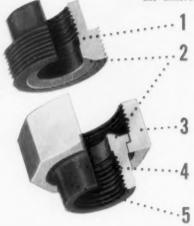
Installation Horizontal and vertical, with or without flanges and other features.

Electric brakes (2 types)—5 types of gear reduction up to 432 to 1 ratio. Mechanical and electronic variable speed units—fluid drives—every type of mounting.

THE MASTER ELECTRIC COMPANY
Dayton 1, Ohio



Not all forged steel fittings are alike. Careful design and precision manufacture give W-S Forged Steel Unions these important features that tell the difference:



Designed to AAR dimensional specifications.

Steel-to-steel seats, with spherical-to-angle mating surfaces. Angle is rolled to extra hardness to resist galling.

Cadmium plated nuts for resistance to corrosion and to galling and siezing.

End pieces protected against rust by new W-S blue synthetic coating.

Octagonal end pieces for better gripping.

W-S Unions are machined from forged steel in accordance with ASTM material specifications A-105, Grade 2. They are available with screw-end and socket-welding end pieces in 3000 lb. class, sizes ½8" to 3".

For complete information send for Bulletin U-1. Write to W-S Fittings Division, H. K. Porter Company, Inc., P. O. Box 95, Roselle, N. J.



W-S FITTINGS DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 248 on Inquiry Card-Page 17



#### Cabinet-Type Shop Desk Locks-up Valuables



A sturdy steel desk, designed for stand-up writing jobs in the machine shop, provides a lockequipped storage section. Thus, records and other valuables can be properly safeguarded from loss or pilferage. A half shelf inside the desk's fully enclosed lower section is adjustable, and an additional half shelf can be added to double the shelf storage area. Over-all height is 521/4", with a 42" height at front of the writing surface. The desk is shipped knocked-down from Republic Steel Corp., Berger Div., Canton 5, Ohio.

Circle No. 57 on Inquiry Card-Page 17

#### Plug-in Busway Keeps Power Loss Low



General Electric, Distribution Assemblies Dept., Plainville, Conn., announces its type LVDP plug-in style busway. It is designed for use in industrial plants

(Please turn to page 174)

For More Information Circle No. 249 on Inquiry Card—Page 17→



Wipers are used in every manufacturing department in this plant.

Women production workers like the softness of Scott Wipers, in wiping black tin coating off their hands. All employees using them prefer the convenience of having Scott Wipers right Scott Wipers are cheaper to store, cheaper to handle than cloth wipers. By using Scott Wipers, this plant saves 20% annually in material costs. Like more details? Call your local Scott distributor, or write Scott Paper Company, Department PW-76, Chester, Pennsylvania.



#### SCOTT PAPER COMPANY

Makers of the famous Scott paper products you use in your home. Consult your local TV schedules for Scott's program, "Father Knows Best."







# Increase cutting life up to 30%...with DISSTON SEGMENTAL CIRCULAR SAWS!

Exclusive pin-lock feature locks segments together by aligning pins—permanently holding the segments in perfect alignment. Since there are no aligning rivets to limit sharpening, up to 30% more cutting life is possible.



- Replaceable high-speed steel segments need only infrequent sharpening.
- Narrow kerf assures fast, clean cutting with minimum waste.
- Teeth are accurately indexed so they may be sharpened on automatic machines.
- · For cutting ferrous or non-ferrous metals.
- In diameters from 11" to 63".

For cutting non-ferrous metals and plastics Disston also manufactures a complete line of solid tooth Diss-croloy and Alloy Circular Saws.

For new literature write to Disston-HKP, Philadelphia 35, Pa.



Henry DISSTON DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 250 on Inquiry Card-Page 17

## new products

(Continued from page 172)

where high-capacity and low-voltage-drop characteristics are necessary in conductors feeding welders and similar equipment. Low power loss and low voltage drop characteristics are obtained by interlacing closely-spaced bus bars in recurring sequence with no adjacent bus bars having the same polarity. The busway is for 3-pole application and is rated from 600 to 4000 amp, 600 v or less.

Circle No. 58 on Inquiry Card-Page 17

#### Hoist Has 25% More Pulling Power



A differential hoist is available that saves up to 25% of the pull necessary to operate because of incorporation of anti-friction needle bearings in the lower sheave. It is highly adaptable, according to the manufacturer, Thern Machine Co., Winona, Minn., to all industries that have multi-lifting jobs such as automotive industries, manufacturers, mechanical shops or utility companies. Weighing only 25 lb, it is readily portable and can be easily transferred from one job to another. If desired, it can be mounted on a trolley for movement of loads from one location to another.

Circle No. 59 on Inquiry Card—Page 17

For More Information Circle No. 251

on Inquiry Card—Page 17→

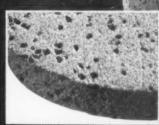
# NEW

# MACKLIN

INCREASES PRODUCTION ON ALL TYPES OF CARBIDE GRINDING

CGO 112 V8 SV-9847 1500 RPM





CONTROLLED POROSITY

Note the open pore structure on this close up of a Macklin V-8 Wheel.

The new Macklin V-8 Wheel sets new standards of grinding performance.

OPERATORS LIKE IT because of its soft, smooth "feel". It's easy on the wrists, easy on the tools, cuts faster with less push.

MANAGEMENT LIKES the long wheel life of the V-8 wheel, the way it increases production and cuts operator fatigue.

EASIER ON TOOLS

EASIER ON OPERATOR

HAS A SOFT, SMOOTH

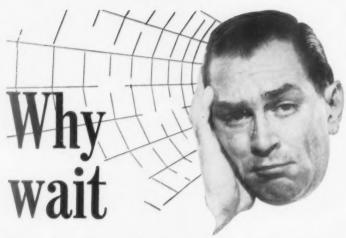
TEST YOUR OWN JOB

It's a fact. Test the new V-8 Wheel on any one of your carbide grinding jobs and you'll switch! You get faster, cooler cutting . . . longer wheel life. But don't take our word for it. Test the V-8 Wheel in your own plant . . on your own job

FOR A DEMONSTRATION WITHOUT OBLIGATION, CONTACT YOUR NEAREST MACKLIN DISTRIBUTOR OR CALL FOR THE SERVICES OF A MACKLIN FIELD ENGINEER.

18 THE NEWEST IN MACKLIN'S WHEELS OF PROFIT FOR INDUSTRY

COMPONY DEPT. IS JACKSON, MICHIGAN



for industrial rubber products?





Quaker & Quaker Pioneer Rubber
Distributors and Warehouses
provide on-the-spot service
right across the country

... for these fine industrial rubber products: BELTING: conveyor, transmission or V-belting . . . HOSE: air, water, steam, oil, suction or welding hose ... PACKING: chute lining, duck and rubber packing, press pads, sheet packing . . . GASKETS-MATTING . . . MOULDED AND EXTRUDED RUBBER PRODUCTS.

For more information, write: H. K. Porter Company, Inc., Quaker Rubber Division, Philadelphia 24, Pa. or Quaker Pioneer Rubber Division, Pittsburg, Calif.

HKP)

QUAKER RUBBER DIVISION
QUAKER PIONEER RUBBER DIVISION

H. K. PORTER COMPANY, INC.

For More Information Circle No. 252 on Inquiry Card-Page 17

new products

Inert Gas Welder Cuts Non-Ferrous Plate



The inert gas welding process, developed by Air Reduction Sales Co., 150 East 42nd St., New York 17, N.Y. in 1948, can now be used for cutting non-ferrous metals, in addition to welding ferrous and non-ferrous metals. Using standard inert gas welding equipment, the new process requires no special operator techniques. Simple adjustments in gas flow and steel wire speed are all that is needed. Both high production machine and manual equipment can be adjusted for cutting with equal facility. Cutting speeds of up to 132 ipm can be attained on 1/4" aluminum plate and up to 85 ipm on stainless.

Circle No. 60 on Inquiry Card-Page 17

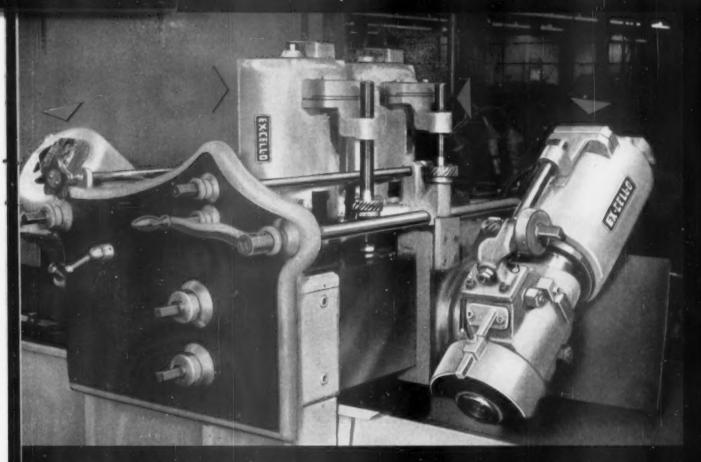
Lift Truck Works in Boxcars, Yards, Etc.



Hyster Co., 2902 N.E. Clackamas St., Portland 8, Ore., has developed a pneumatic tire lift truck that is compact enough to

(Please turn to page 178)
For More Information Circle No. 253
on Inquiry Card—Page 17→

PURCHASING



# This Idea Multiplied Production by Two...

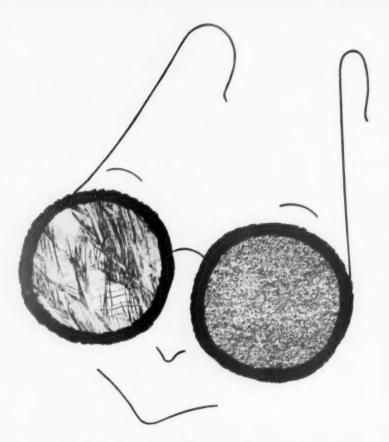
### EX-CELL-O SPINDLES -AN INGENIOUS APPLICATION

A machinery builder in Kalamazoo, Michigan was faced with the problem of finish grinding both flat and angular dovetail ways on the column, knee and table of his vertical milling machines. Surface lengths varied from 9" to 24"; tolerances on flat and parallel measure had to be within .001" in 24". Workpieces were gray iron sand castings.

Conventional way to do the job—an oscillating surface grinder to work each dovetail separately. Production men thought they could improve on convention. They built up their own machine from an old planer bed, added a bridge to support four Ex-Cell-O Precision Spindles and retained the standard planer feed.

The result: grinding both sides of four dovetail surfaces in one-pass planer fashion for a saving of roughly 50 percent in per unit cost. Perhaps you too have an operation which could be performed more economically by an Ex-Cell-O Spindle; or perhaps you simply want to use the most versatile, dependable and long-lived spindle money can buy. In either case, you'll want to get in touch with your nearby Ex-Cell-O Representative, or contact Ex-Cell-O direct.





# You can see the difference

. not with the naked eye, we'll admit . . . nor even with bifocals, but put a polished and etched sample of our new FLEXOGRAIN phosphor bronze under the revealing eye of the microscope and compare it with phosphor bronze strip generally available.

The scientifically controlled, fine grain structure of FLEXOGRAIN is great for severe bending and other complex forming operations . . . improves fatigue resistance, surface finish and ductility ... and cuts costly fabrication rejects to a minimum.

At Riverside-Alloy we have always been keenly aware of the importance of grain size control in determining functional and fabrication properties of our alloys. We have been supplying fine grain phosphor bronze strip for special applications for over 20 years. Now, with our recently expanded, modern facilities, we can supply production quantities to meet your needs.

For detailed information write to Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.

Technical Bulletin T-4.



ALLOY METAL WIRE Prospect Park, Pa.

RIVERSIDE METAL Riverside, N.J.

PRENTISS WIRE MILLS

RIVERSIDE-ALLOY METAL DIVISION H. K. PORTER COMPANY, INC.

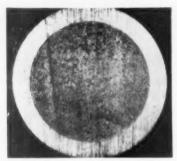
For More Information Circle No. 254 on Inquiry Card-Page 17



(Continued from page 176)

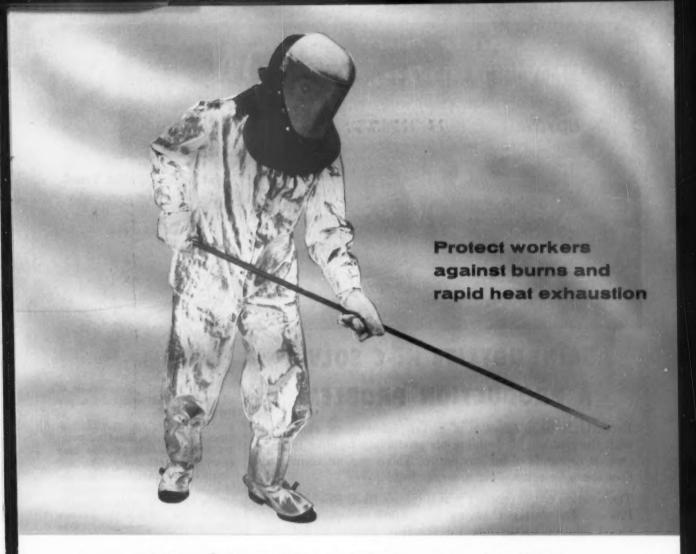
work inside a single boxcar, yet has the traction and capacity to handle 7000 lb loads over rough terrain. Typifying its maneuverability qualities is a turning radius of 100" and a length of 1063/8". The truck is equipped with pneumatic tires for both inside and outside operation. Allweather dependability is provided by a heavy-duty gasoline engine. Large bore and stroke enable this 70 hp engine to develop a rated torque of 182 lb/ft at 1200 rpm. Circle No. 61 on Inquiry Card-Page 17

### Copper-Plated Communications Wire



Development of a new type of communications wire of highstrength steel with a heavy copper coating has been announced. The new wire, in addition to costing less than solid copper wire, has the reinforcing strength of a steel core. This permits significant economies through elimination of up to one-third of the poles required for supporting solid copper lines. Although the highest volume application of the new wire is expected to be in telephone, and telegraph lines, the wire meets multiple requirements of high tensile strength (up to 250,000 psi) electrical conductivity. It is made by National-Standard Co., Niles, Mich.

Circle No. 62 on Inquiry Card-Page 17 For More Information Circle No. 255 on Inquiry Card-Page 17→



# New M-S-A® Aluminized\* Asbestos Clothing reflects over 90% of all radiant heat

On-the-job performance records show that the brilliant reflective qualities of aluminum treated fabrics prevent rapid build-up of body temperatures. This protection against burns and radiant heat permits workers to operate more comfortably, safely and efficiently for longer periods of time.

The highly reflective surface layer of vacuum distilled aluminum, directly applied to one side of all M-S-A Aluminized Asbestos Safety Clothing, provides a core of resistance to radiant heat. In addition to heat resistance, the aluminized coating also offers lightweight flexibility with a surface which will not peel when exposed to flexing at high temperatures.

Equip your workers now against accidents and downtime exhaustion when working around hot spots. Choose from M-S-A Aluminized Asbestos Coats, Aprons, Trousers, Coveralls, Sleeves, Spats, Leggings and Gloves. Write for our new bulletin which describes these items in detail.

### MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pennsylvania At your Service: 76 Branch Offices in the United States

### MINE SAFETY APPLIANCES COMPANY OF CANADA, LTD.

Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, Sydney, N. S. \* Representatives in Principal Cities in Mexico, Central and South America Cable Address: "MINSAF" Pittsburgh

 3M Brand Aluminized Fabric made by Minnesota Mining and Manufacturing Company.





# AGAIN! UDYLITE Hi-C SOLVES A PRODUCTION PROBLEM

Recently, a large supplier of nickel-plated parts was faced with the problem of doubling his production to meet the increased demands of his customers. There was no additional floor space for extra tanks or equipment.

The solution to the problem was Udylite's Hi-C Bright Nickel Process. By simply changing his 13,000 gallons of bright nickel solution to the new Udylite Hi-C Bright Nickel, the increased production was obtained.

Current densities were increased as the greater conductivity of the high chloride solution permitted higher current with no burning, even without increased agitation.

In addition, this user of Udylite Hi-C Bright Nickel Process benefited by better throwing power, which meant less nickel was used to obtain thickness requirements in recesses. Also, fewer anodes were needed since the Hi-C process provided the best anode corrosion of any nickel bath.

Why not find out what Udylite's exclusive Hi-C Bright Nickel Process can do for you? Write today for a new free folder describing Hi-C Processes for rack and barrel plating—or call your nearby Udylite representative.





### **Mechanical Pallet Truck**



A mechanical pallet truck of all-welded steel construction and lightweight design is said to guarantee long life and maintenance-free service. Steel ball-bearing swivel casters provide easy steering. It efficiently lifts and moves loads on single and double-face pallets or other types of materials handling equipment. The extra-sturdy steel forks have a 1500 lb holding capacity. One man easily operates the truck. The maker is Rack Engineering Co., 180 Sixth St., Connellsville, Pa.

Circle No. 63 on Inquiry Card-Page 17

### Screwdrivers, Nutsetters Control Torque



The Thor Tool Co., Aurora, Ill. announces a line of air and electric screwdrivers and nutsetters providing torque control in the assembly of threaded fasteners. A

(Please turn to page 184)
For More Information Circle No. 257
on Inquiry Card—Page 17→

# ANNOUNCING TWO NEW RESEARCH ACHIEVEMENTS

FOR GARDEN, FARM, HOME AND FACTORY

EAGLE

### The new-style "400" series EAGLE OIL CANS





401-NS - 1 GAL.

402-NS - 2 GAL.

Ideal for use with stoves, heaters, in construction work, service stations, general plant and railroad maintenance.





40212-NS - 21/2 GAL.

405-NS - 5 GAL.

### The new-style "500" series EAGLE GASOLINE CANS





501-NS - 1 GAL.

502-NS - 2 GAL.

Ideal to use with outboards, camping, in home workshops, with garden implements, power lawn mowers.





50212-NS - 21/2 GAL.

505-NS - 5 GAL.

New Style
New Construction
New Shape

Order the new Eagle Oil and Gasoline Cans NOW, or write direct to Eagle for information.

## EAGLE "400" and "500" Series Cans...

- feature seamless-drawn dome-shaped body.
- have double seamed bottom—no top or side seams.
- are made of heavy 26-gauge galvanized steel.
- are designed for rough use and unlimited service.



Serving Industry Since 1894

MANUFACTURING CO. Wellsburg, West Virginia

Handle Flammable Liquids In the Approved Safe Way

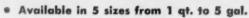
# SAFETY CANS

The COMPLETE Line



UI-2 - 1 QT.

UI-10 - 1 GAL.



- No waste, no splash, no spill.
- Self-adjusting guard cap prevents leakage.
- · Bottoms reinforced with heavy steel hoop.
- Non-flash-back safety screen available for all models. Flexible-Funnel attachment available for 1, 21/2 and 5 gal. units.
- . 1 qt., 2 qt., 1 gal. sizes come with triggergrip handle — 21/2 and 5 gal. sizes feature free-swing handle.
- Safe for handling all flammable liquids.

Eagle Safety Cans are approved by Underwriters'Laboratories, Inc. and by Factory Mutual.



Eagle Safety Cans have strong 1-piece construction; no seams.



UI-25 - 21/2 GAL.



UI-50 - 5 GAL.





UI-505 - 5 GAL. WITH SAFETY SCREEN



UI-50F - 5 GAL. WITH FLEXIBLE FUNNEL



ORDER APPROVED Eagle Safety Cans from your supplier or write direct to Eagle for Information.

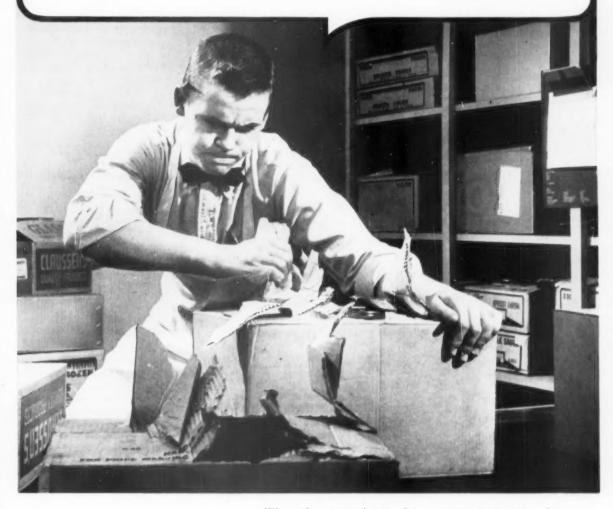
WRITE for latest Eagle Catalog showing the Complete Line of Eagle Oilers; Safety, Oil, and Gasoline Cans, and Containers. It's free.





MANUFACTURING CO. Wellsburg, West Virginia Serving Industry Since 1894

Man, it just isn't *safe* to open these cartons. A guy either gets stuck on a staple...or slashes the can when he cuts the carton. The cartons sealed with one strip of reinforced tape — those are the ones I like.

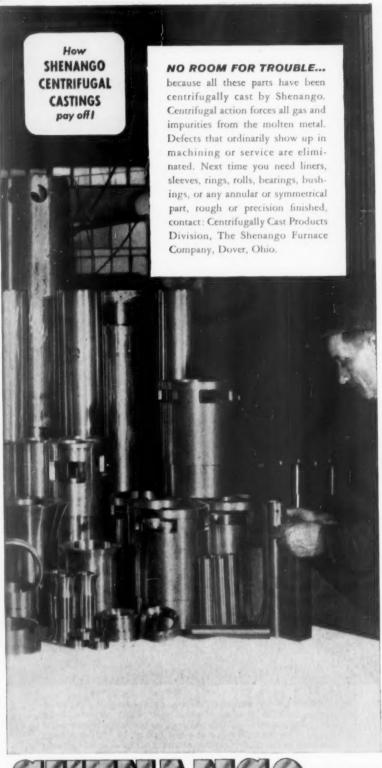


When the convenience of an easy-to-open carton is important to you and when you want super-strong shipping protection, order Glassweb reinforced-with-glass tape. The economy of *one* pass, one strip sealing means savings in the Shipping Department. The ease of opening will keep customers happy, too. Order Glassweb and let it prove itself.

# GLASSWEB REINFORCED TAPE



CENTRAL PAPER COMPANY . MENASHA, WISCONSIN





For More Information Circle No. 259 on Inquiry Card-Page 17

# new products

(Continued from page 180)

completely new clutch principle has been engineered into the tools which puts positive torque control into the hands of even inexperienced assemblers. It effects substantial increases in the production of fastened products. The torque attachment is set on the outside of the clutch attachment and the clutch disengages instantly when the pre-set torque is reached. Range of adjustmen's extends from 10 to 100 inch-pounds torque.

Circle No. 64 on Inquiry Card-Page 17

### Squaring Shears Speed Accurate Cutting



A line of underdrive squaring shears is on the market, for which labor saving features and optional accessories are available to speed up production and maintain accurate cutting performance. A hinged back gage angle enables long plates to be fed through the shear. At operator's option, it can be swung out of the way. Mounted in the dovetail slots of the bed or front brackets, disappearing adjustable stops permit feeding the sheets without lifting and without risk of marring. More working strokes per minute plus instant engagement of the multi-point sleeve clutch are said by the manufacturer, Niagara Machine & Tool Works, 683 Northland Ave., Buffalo 11, N.Y., to assure more cuts per hour.

Circle No. 65 on Inquiry Card-Page 17

For More Information Circle No. 260 on Inquiry Card—Page 17->
PURCHASING MORE THAN THE LUBRICATION LEADER ...

ALL THESE VITAL PRODUCTS:

D Lubrication Equipment

Spray Pump Equipment

Hydraulic Hose, Couplings
... with nation-wide service and training programs to back up the products!

**Cut Lubrication Costs up to 64%!** Alemite offers the widest choice of lubrication fittings on the market—timesaving pumps and guns for handling of lubricants—fully automatic airborne mist lubrications systems—centralized systems for both oil and grease.

Apply Materials 30% Faster!—If you use any material that is received in a drum—paint, putty, caulking, even food products... Alemite can pump direct from the drum to point of application for spraying, extruding, transfering, packaging!

**Protect Hydraulic Systems!**—Alemite offers a complete line of non-skive, reusable high pressure hose and couplings for *any* hydraulic system.

And Alemite backs up these products with service points from coast to coast—with free training programs and plant surveys that will save money for your company!

For free catalogs and complete information, write Alemite, Dept. Z-67, 1850 Diversey Parkway, Chicago 14, III.

# ALEMITE

Division of STEWART-WARNER CORPORATION

Alemite is the only single source for all these famous products:

OIL-MIST

Automatic Airborne Lubrication System

Centralized Lubrication Systems

Accumatic

red-ball

Hydraulic Lubrication Fittings

Barrel Pumps for Oil and Grease "POWERHOUSE

DARREL-TO-DEARING

Manual and Power Operated Pumps and Guns

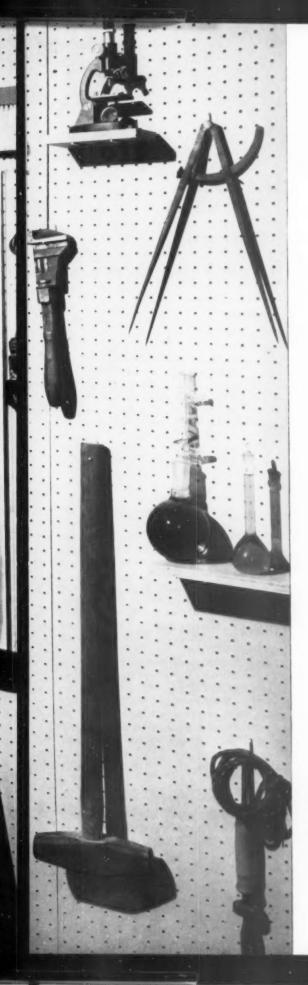
Spray Pump Equipment

Versatal

SURGEPRUF

Hydraulic Hose and Couplings





# Can a man be an expert in everything?

It's sad but true that the product design engineer of today has to be a many-faceted expert. He has to be an engineer and a materials expert and a production expert. He has to be well up on purchasing fundamentals, plus the elements of cost accounting.

There is one design responsibility from which we can give you some relief, though. That is the selection of springs. Spring design is a field unto itself, and, although we'll be glad to give you mountains of interesting information on the subject, why concern yourself with it? We'll do the work for you.

AS&W spring engineers will gladly work with you to select the right combination of spring characteristics that will do the job well. Most important: they may be able to suggest a slight design change that will drastically lower the *cost* of the spring.

Just call your nearest AS&W representative.

### AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL
GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEYA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA, SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

# USS AMERICAN QUALITY SPRINGS

UNITED STATES STEEL



# WHEN THE BOTTOM DROPPED OUT of the ERIE CANAL

Of the many noteworthy events that took place back in 1907, one of the most unusual occurred near Syracuse New York, where a part of the bottom of the Eric Canal dropped out. Four canal boats were sucked through and shattered; a flour mill was badly damaged; and there was a loss of over \$500,000. This catastrophe may sound more believable when we tell you that the break occurred on a viaduct over Onondaga Creek.

In a more constructive vein, a happier (if less publicized) event occurred in Cincinnati in the same year, when Soren Sorensen and John Christensen founded what was to become The Cincinnati Gear Company.

In the ensuing fifty years, many changes have taken place. People no longer ride on canal boats; and the gear-manufacturing business has progressed similarly. Technologically we've been in the forefront of this progress, but we've also tried to preserve some of the attention to detail and "craftsmanship" that prevailed in those earlier times. The result has been a gratifying record of customer satisfaction—the kind of satisfaction we'd like you to experience on your next custom gear order.

# THE CINCINNATI GEAR CO.

Fifty Years of "Gears-Good Gears Only"



For More Information Circle No. 262 on Inquiry Card—Page 17 For More Information Circle No. 261 <-on Inquiry Card—Page 17

# new products

# Low Cost, Versatile Borer Designed for Small Manufacturers



Aiming at job shops and small subcontractors, Heald Machine Co., Worcester, Mass., has come up with a versatile, low-cost precision boring machine which is capable of doing many of the jobs that formerly required larger, more expensive machine tools,

Particularly suited to instrument-making and toolroom work, the new Model O Bore-Matic can perform a variety of boring, facing, turning, chamfering and grooving operations. With special attachments, it can also be used for contour or spherical boring, or turning and slot milling. Cost of the Model O Bore-Matic, stripped down, is \$5000.

One of the main features of the small-size, low-cost machine tool is its multiple spindle unit with interchangeable spindle plates which can be bored to fit individual job requirements. The multiple spindle head makes it possible to finish a number of holes on close centers simultaneously—

work that previously could often be performed only one hole at a time.

As one Heald official points out, the new boring machine "will allow potential users of machine tools to get equipment they previously weren't able to use because their volume of work didn't justify the investment or because they would have to buy more machine than was needed for a particular job."

Users can start by purchasing a simple single-end machine to meet immediate requirements and then build up the boring machine unit by unit. With a sufficient number of attachments a fourhead double-end setup with cross slide is possible,

The building block principle of adding components to the basic machine tool means that Heald is offering custom-built machine precision with off-the-shelf availability

Adaptable for automated production, the Model O can perform any of the operations within its capacity range that are handled on larger Bore-Matics. And on regular production work, Heald says the new unit can easily hold tolerances of 0.0002 in.

Circle No. 66 on Inquiry Card-Page 17

FOR MORE INFORMATION
ON PRODUCTS
IN THIS ISSUE
PLEASE USE
INQUIRY CARD—PAGE 17



The Nation's Headquarters for Brass, Copper and Stainless Steel

money saved-if you check with Chase. Why not call us today?

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L. I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

WATERBURY 20, CONNECTICUT SUBSIDIARY OF KENNECOTT COPPER CORPORATION



# NOW...Wagner's high starting torque Integral hp single-phase motor is available in the latest NEMA frame sizes!

The well-known Wagner Type RA Motor is the work-horse of the single-phase motor field. This repulsion-start, induction-run motor combines the best features of the repulsion motor in starting, with those of the induction motor while running at rated operating speeds—ideal for applications requiring high starting torque.

No other single-phase motor has its ability to continually start heavy loads or perform with such complete satisfaction under continuous service.

Specifically designed for compressors, pumps, machine tools, grinders, and conveyors; it is preferred for many other single-phase high inertia or heavy friction starting applications because of its ability to start such loads with low current and with minimum light flicker.

Let a Wagner field engineer show you how these motors can be applied to your needs. Call the nearest of our branch offices, or write us.

OLD FRAME SIZE	NEW FRAME SIZE		
203	182		
204	184		
224	213		
225	215		
254	2540		

4 pole (1750 RPM, 60 cycle and 1450 RPM, 50 cycle) ratings are interchangeable in mounting dimensions with capacitor-start motors of the same ratings.



BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

Wagner Electric Corporation

M57-11

ELECTRIC MOTORS . TRANSFORMERS . INDUSTRIAL BRAKES . AUTOMOTIVE BRAKE SYSTEMS - AIR AND HYDRAULIC

For More Information Circle No. 264 on Inquiry Card-Page 17



IF IT COMES IN A CAN, LET

# CAN BAND, THE MULTIPACK MERCHANDISER,

# PUT OVER YOUR SPECIAL PROMOTIONS

# INTRODUCTORY OFFERS MARKET TESTS



WITH the CAN BAND LOADER, the small machine developed by CONTAINER CORPORATION, to bring you all these advantages at lowest cost-

Here are the facts:

- · packs up to 50 cartons a minute
- · requires no capital investment—low monthly rental
- · feeds and loads cans automatically
- · easy to adjust, maintain, operate

# CONTAINER CORPORATION OF AMERICA 38 South Dearborn Street, Chicago 3, Illinois, and 42 other cities

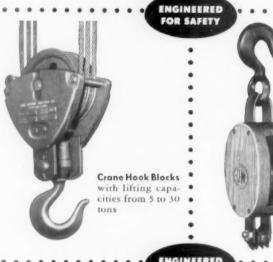
# Make **UPSON-WALTON**

your one-order source for these quality products



Rope Fittings including clips, turnbuckles, shackles and thimbles

Tackle Blocks of wood and steel for every purpose



OR SAFETY



Wire Rope in a wide variety of sizes and construction

Combine four orders in one . . . save purchasing time . . . have assured quality and dependability by making Upson-Walton your single source of supply for wire rope, rope fittings, tackle blocks and crane hook blocks. For complete information, contact your nearby Upson-Walton distributor or write The Upson-Walton Company, 12540 Elmwood Avenue, Cleveland II, Ohio.

### The UPSON-Company

Manufacturers of WIRE ROPE . ROPE FITTINGS . TACKLE BLOCKS CRANE HOOK BLOCKS

Other offices: New York . Chicago . Pittsburgh

For More Information Circle No. 266 on Inquiry Card-Page 17

# new products

### How to Reduce Cadmium Plating Cost



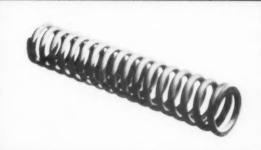
Hanson-Van Winkle-Munning Co., Matawan, N.J. has developed a cadmium plating process that produces lustrous deposits with exceptionally low brightener consumption. This improved process increases brightness up to 10%, brightener life 400% and plating speeds up to 10%. The process is used to protect iron and steel parts against corrosion and nonferrous metals against surface tarnish, corrosion or galvanic Unlined steel tanks as well as couples formed in assemblies. lined ones can be used for cadmium solutions.

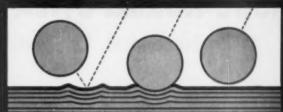
Circle No. 67 on Inquiry Card-Page 17

### Stand-up Fork Truck **Has Short Turning Radius**

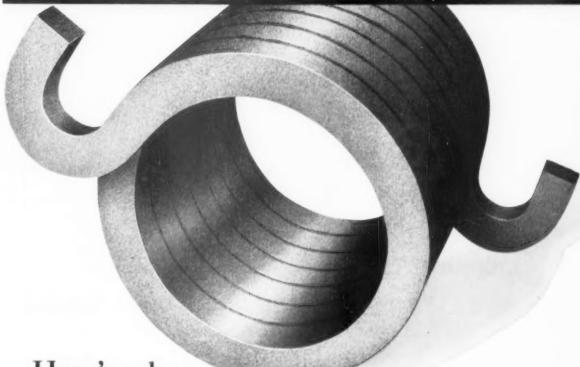


A stand-up truck with a 4,000 lb capacity with loads up to 48" long is announced by Mercury Mfg. Co., 4044 S. Halsted St., (Please turn to page 196)





WHAT SHOT PEENING IS. Thousands of round steel shot are projected against the spring surface at high velocity. They create a thin, cold worked layer that, in effect, causes the spring to operate at lower stress. What's more, shot peening erases tiny surface imperfections which could cause stress concentration points leading to spring failure.



Here's why

# CRUCIBLE FATIGUE RESISTANT SPRINGS

can withstand higher stresses

Every Crucible fatigue resistant spring for heavy-duty industrial applications is shot peened for higher strength and greater fatigue resistance. Crucible controlled shot peening imposes a negative stress on the surface that offsets positive stresses set up in service. Result: a truly fatigue resistant spring that outlasts conventional ones.

Good springs are a combination of proper design, skilled workmanship and fine steel. When you buy Crucible springs you employ a staff of proven designers and spring makers, and Crucible's years of experience in fine steel making—from ore to finished springs. Let an experienced Crucible spring specialist suggest the best fatigue resistant spring for your application. Or write for a copy of the "Handbook of Coil Spring Design." Spring Division, Crucible Steel Company of America, McCandless Avenue, Pittsburgh 1, Pa.

CRUCIBLE

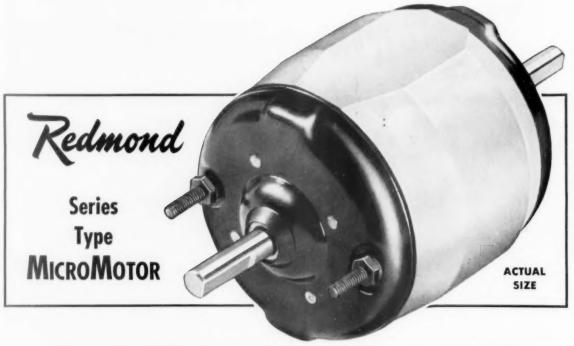
spring division

Crucible Steel Company of America

For More Information Circle No. 267 on Inquiry Card-Page, 17

# **MORE HORSEPOWER...**

in an Economical, Compact, Quality Package



# Especially Designed for Actuators and All Applications Where High Starting Torque Is Needed

The Redmond type TW series MicroMotor is an especially designed actuator motor—not a modified heater motor of conventional stamped steel construction. The stator core is precision die cast to make a rigid, durable motor. The exact bearing alignment and uniformity of air gap result in a motor that will give you years of trouble-free service and quiet operation.

Your Nearest Redmond Engineering Field Office Has Complete Information for You

> Eastern Office 850 Broad Street Newark 5, New Jersey Phone: Mitchell 2-3990

Southeast Office 1720 Section Road Cincinnati 37, Ohio Phone; Melrose 1-3153

Southwest Office 210 Suburban Building 5526 Dyer Street, Dallas, Texas Phone: Emerson 8-4461 Mid-West Office

Fair Oaks Bldg. 6525 W. North Ave. Oak Park, Illinois Phone: Village 8-5721

Western Office 1260 S. Boyle Ave. Los Angeles 23, Californi Phone: Angelus 3-6710 The TW series motor is available with 6 volt DC to 115 volt AC or DC performance winding. The horsepower range is 1/150 to ¾, depending on the speed and type of duty required.

This motor is ideal for pumps, can openers, chair vibrators and actuators, blowers, hedge trimmers, and tape dispensers. Typical automotive applications are window and seat actuators, top lifts, evaporative coolers, and air-ride compressors.

Write, wire, or telephone either the Redmond office nearest you or the home office, and our sales engineer will show you how this motor can save money on your application.

### MAIN OFFICE

201 Monroe Street Owosso, Michigan Phone: Saratoga 5-5151



THE BIG NAME IN SMALL MOTORS

# LAVELLE... Wherever Precision Fabrication is Required

FAIRINGS
BAFFLES
COWLINGS
SHROUDS
ENGINE MOUNTS





PRECISION WELDED AND MACHINED SHEET METAL PARTS AND ASSEMBLIES

ENGINE DUCTS
SHIELDS
COMBUSTION CHAMBERS
BURNER SUPPORTS
COMBUSTION LINERS





JET ENGINE, MISSILE, ROCKET, AIRFRAME AND ELECTRONIC COMPONENTS

EXHAUST NOZZLES
TAIL PIPES
FLAME HOLDERS
SEALS
ENGINE CASINGS





FABRICATED OF STAINLESS STEEL, TITANIUM, NICKEL AND ALUMINUM ALLOYS

SHELTERS
HOUSINGS
REFLECTORS
CONSOLES
NACELLES





TO GOVERNMENT SPECIFICATIONS BY CERTIFIED MEN, METHODS AND MACHINES



Lavelle's services include engineering production planning, tool making, machine shop and sheet metal facilities . . . inert gas, resistance and metallic arc welding, inspected by X-Ray, Zyglo or Magnaflux, painting, anodizing and quality control.



Lavelle Aircraft Corporation • Newtown, Bucks County, Pa.
Between Philadelphia, Pa., and Trenton, N.J.

Write for this illustrated brochure describing Lavelles specialized fabricating services in detail.



### MOVING TIPS FOR PURCHASING AGENTS:

### Mayflower's <u>Scientific</u> <u>Research</u> Makes Moving Safer

Doing a better job for your people and your company, year after year, is the aim of the Research and Development program carried on constantly in the Mayflower organization. It has produced many new ideas, methods, materials and equipment to protect household goods better, increase efficiency, and reduce work for shippers. Any improvement, great or small, is important. Just the simple idea of wrapping in red tissue small, easily over-looked pieces has many times helped prevent their loss. So it is with Mayflower's decision to eliminate tailgates from its vans . . . and the development of its standardized packing materials and methods. You can count on Mayflower for leadership in providing America's Finest Long Distance Moving Service, not only today, but also tomorrow.

AERO MAYFLOWER TRANSIT COMPANY, INC. . INDIANAPOLIS



America's finest long-distance moving service
For More Information Circle No. 270 on Inquiry Card—Page 17

# new products

(Continued from page 192)

Chicago 9, Ill. It can stack at right angles in an aisle equal in width to 102" plus load length. Travel speed is 6½ mph with no load and 5¾ mph with full load. Hoisting speeds are 45 fpm with no load and 30 fpm with full load. Maximum fork elevation is 130" and 61" non-telescopic. Truck is powered by 18 cells of 19-plate lead acid battery, 30 cells of MC-8 nickel-alkaline battery or HA-36 Ready Power unit.

Circle No. 68 on Inquiry Card-Page 17

### Lubricant Pump Clamps on in 30 Seconds



An air-motor operated lubricant pump, incorporating a steel cover, can be clamped in 30 seconds to any standard 25 to 50 lb original refinery container. The pump assembly includes handle for easy portability. The pump is said to develop grease pressure 50 times greater than air line pressure. Including a follower plate for positive prime, it dispenses all pressure-gun lubricants in any weather. Equipped with 6-ft high presure hose, a control valve with curved extension contacts hard-to-reach fittings. Lincoln Engineering Co., 5783 Natural Bridge Ave., St Louis 20, Mo., makes it.

Circle No. 69 on Inquiry Card-Page 17



# WORK GLOVES REINFORCED WITH DU PONT NYLON

OUTLAST OTHERS 2 TO 1! Here's proof: Work gloves reinforced with 50% Du Pont nylon in the wearing surface\* were tested side by side with ordinary cotton Canton flannel gloves in rugged wear tests. They lasted 2.2 times longer—saved 45% in replacement costs! Make sure your gloves are built to last . . . order nylon-reinforced work gloves when you buy. E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department,

Wilmington 98, Delaware. \*Higher percentage of nylon may give even greater durability, as indicated by laboratory data.





# this is a Technical recording CHART catalog # L21195...

Just one of 10,000

Just one of 10,000

circular and strip

recording charts.

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catalogical for every

instrument in your plant!

AP.S. technical will help you design charts for new instruments or special applications

write for complete brochure \*57A

TECHNICAL CHARTS Incorporated
BUFFALO 10, N.Y.

For More Information Circle No. 272 on Inquiry Card-Page 17



Magnetic Metal Plate Handling Attachment



Industrial lift trucks can now be equipped with a magnetic attachment to insure fast, safe handling of metal plate. The device, mounted between the forks of an electric truck, operates automatically when a control switch on the truck cowl is placed in the "on" position. Turning the switch to "off" permits regular fork handling with the lift truck. More efficient handling of the metal plate is possible with this device, developed by the Yale & Towne Mfg. Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa., as the action of the magnet prevents the load from slipping or tipping.

Circle No. 70 on Inquiry Card-Page 17

### Drills Pack More Power, Weigh Less



Thor Power Tool Co., has on the market a series of lighter but more powerful universal electric drills in sizes from 5%" to 1". Ruggedly built, the drills were (Please turn to page 202)

> For More Information Circle No. 273 on Inquiry Card—Page 17→ PURCHASING





ANDERSON DISTRIBUTOR HWOTTHA U. S. A.

### THE NAME OF YOUR ANDERSON DISTRIBUTOR

is all you need for complete data and fast service on wire brushes.

ANDERSON'S BRAND NEW CATALOG TELLS YOU:

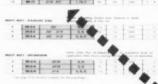
WHAT

TO GET

Complete data on the correct wire brush for every application.

agent presents will sout a larger body life size it off present in the law of the work to be the sout, counting a law facility and

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		ARLE 107 36	100		
		F - 1 34 10	-		-



Anderson HOW TO

GET IT

Simplified cataloging makes it easy to pick the wire brush you want.

## HOW TO USE IT

Complete, concise, clear information on how to get maximum efficiency and economy from Anderson wire brushes.

Your Anderson distributor has this informative catalog plus a complete line of wire brushes. Consult him today, or write:

ANDERSON CORP.

Worcester 10, Mass. 1046 Southbridge St.,





American Type Founders Co., Inc. saves \$6050 every two years at their modern main plant in Elizabeth, New Jersey uses Sylvania's Group Replacement Plan to change over 11,000 lamps and overhaul over 5,000 fixtures.

# \$6050 saved regularly by American Type Founders with Sylvania's Group Replacement Plan

American Type
Founders Co., Inc.
estimate a regular
saving of \$6050 over
former lamp replace
ment and fixture maintenance costs with
Sylvania's Group Replacement Plan.

This major saving is on labor alone—employed to change over 11,000 Sylvania fluorescent lamps and to completely recondition over 5000 fixtures every 2 years. ATF also enjoys the additional advantages of greater lighting efficiency, increased production, less work interrup-

tion, and improved employee morale.

These major lighting economies are largely due to the service life, the quality, and the improved maintained brightness of Sylvania fluorescent lamps.

For example, when ATF initiated their Sylvania Group Replacement Plan, lamps were changed annually. ATF found that in actual operation Sylvania fluorescent lamps were exceeding their Rated Life of 7500 hours, because of the minimum on-and-off cycles in effect. Consequently, it became possible to adopt a 2-year replacement plan. Burnout records showed a rate of less than 20% over a two-year period!

Your local Sylvania Representative will be glad to discuss your plant or office lighting equipment and maintenance practices. Without obligation, he will demonstrate how you, too, can cut lighting costs with the right lamps—selected from Sylvania's complete line of fluorescent, incandescent and mercury-vapor lamps—and a Group Replacement Plan based on your particular requirements.

Call your Sylvania Representative, or send today for a Free book-let about the practical and important economies of a Sylvania Group Replacement Plan.



SYLVANIA ELECTRIC PRODUCTS INC. Lighting Division, 60 Boston Street, Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd. Shell Tower Building, Montreal

# SYLVANIA T

... the fastest growing name in sight!

LIGHTING • RADIO • ELECTRONICS
TELEVISION • ATOMIC ENERGY

-For More Information Circle No. 274 on Inquiry Card—Page 17

Sylvania Electric Products Inc.
Lighting Division, Dept. 7L4506, Salem, Mass.
Gentlemen: I'd like to know more about the Sylvania Group Replacement Plan and how it can cut lighting costs.

Name

Company

Address

City

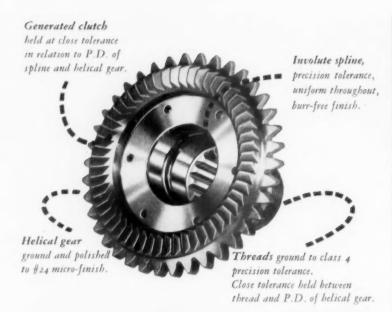
Zone
State

For More Information Circle No. 275 on Inquiry Cord—Page 17

For More Information Circle No. 2/4 on Inquiry Cara—Page 1/ For More Information Circle

JUNE, 1957

20



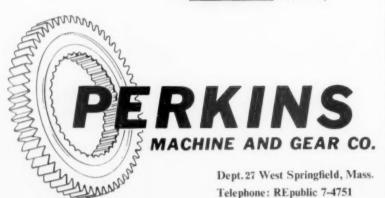
# DON'T GAMBLE WITH GEAR PERFORMANCE

OU know that gambling with gears can cost you money - production delays, costly rejects, failures in use. You don't want to take chances with your customers . . . they expect day-in, day-out performance from your machines. Your performance guarantee can be Perkins custom-cut gears . . . precision gears made to your exact specifications. Perkins' 52 years of gear-making know-how, extensive facilities and equipment, and rigid production controls assure uniform tolerances throughout . . . plus a

consistent micro finish. You get perfect meshing and full capacity from every gear. Many leading manufacturers - Sikorsky, Stanley, Universal Winding, for example rely on Perkins for top-quality gears, gears that cost less in the long run. Ask us to quote on your next gear requirement. Then judge for yourself.



Folder illustrating gears Perkins has made - face gears, generated and curvic clutches; bevel, spiral, helical and spur gears; ratchets, sprockets and ground thread worms - from all materials. Includes Perkins facilities for producing various gear types and sizes.
Write today.



For More Information Circle No. 276 on Inquiry Card-Page 17



(Continued from page 198)

designed for heavy duty applications in machine shops and for large equipment manufacturing plants. There are four models. The EN5, with 5/8" drilling capacity, and the EN6, with 3/4" capacity, come equipped with the 3-jaw chuck and key. The two larger models, EN7 (%") and EN8 (1") have Morse taper sockets, which also are available as optional equipment for the EN5 and EN6 models.

Circle No. 71 on Inquiry Card-Page 17

### 1000-Ampere Welder For Submerged Arc

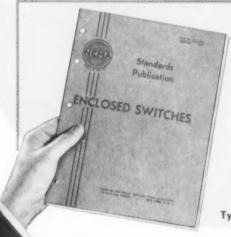


Designed primarily as a power source for the submerged arc process, a 1000-ampere a-c transformer welder with an operating range of 325 to 1000 amperes, has motor driven current control. By means of a plug and receptacle, remote control of both welder output and primary conductor is available, in addition to the controls mounted permanently on the welder case. With output opencircuit voltages of 85 to 100 v, the unit has power factor correction capacitors and operates on a reconnectable 230/460 v input. Welder is made by General Electric, Welding Dept., Schenectady 5,

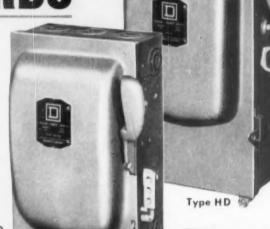
Circle No. 72 on Inquiry Card-Page 17

# **GET SQUARE D SAFETY SWITCHES AND BENEFIT**





Type ND



NEMA standards are adopted in the public interest and are designed to eliminate misunderstandings between the manufacturer and the purchaser, as well as to assist the purchaser in selecting and obtaining the proper product for his particular need.

Square D's quick change to the new standards gives you the performance and safety which NEMA standards assure.

Square D Safety Switches cost no more — why settle for less?

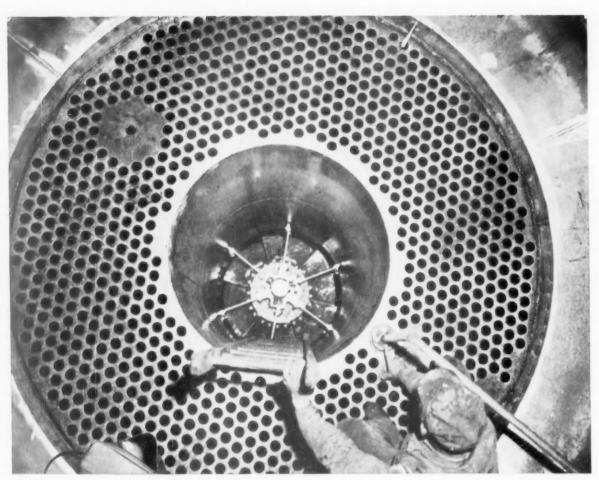
HEAVY DUTY	NORMAL DUTY formerly Types H, S, or A	LIGHT DUTY formerly Types D or G
30-600 250 or 600V AC, DC	30-1200 250 or 600V AC, DC	30-200 250V AC
NEMA 12 - Industrial Use (Gasketed) NEMA 4.6.5 - Water-tight 6. Dust-tight NEMA 7 - Explosion-resisting Class I - Group D NEMA 9 - Explosion-resisting	NEMA 1 - General Purpose NEMA 3R - Rainfight	NEMA 1 - General Purpose NEMA 3R - Raintight
NEC Fuse Ratings Dual-Element Fuse Ratings	NEC Fuse Rating Dual-Element Fuse Ratings	NEC Fuse Rating
Quick-Make, Quick-Break Independent of Handle	Quick-Make, Quick-Break Independent of Handle	Positive Make, Positive Brea Spring Assisted
Interlocked & Padlock Attachment	Interlocked & Padlock Attachment	Padlock Attachment
Extra-Heavy Silver	Silver	
Maximum Endurance Far Exceeds UL Standards	Exceeds UL Standards	Meets UL Standards
	30—600 250 or 600V AC, DC  NEMA 12 · Industrial Use (Gaskoted) NEMA 4.6.5 · Water-light 6. Dust-tight NEMA 7 · Explosion-resisting Class I—Group D NEMA 9 · Explosion-resisting NEC Fuse Ratings Dual-Eloment Fuse Ratings Quick-Make, Quick-Break Independent of Handle Interlocked 6 Padlock Attachment Extra-Heavy Silver Maximum Endurance	New   Sometry Types H, S. er A

Type LD



NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE

SQUARE D COMPANY



# Switching to *Curpenter* Stainless Tubing pays off 5 ways!

How can *you* use the five advantages gained by a prominent distillery when it changed to Carpenter Stainless Tubing for a new stillage evaporator?

Twice the service life . . . greater operating efficiency . . . lighter weight . . . greater carrying capacity . . . and a higher cost-life ratio are the proven results obtained with more than a mile of Carpenter Stainless Tubing in this evaporator.

Additional proof of how Carpenter quality pays off on job after job is available from your Carpenter Distributor. Discover the profitable difference Carpenter can make on your own processing and transfer lines, evaporators, heat exchangers and similar applications.

Talk to your Carpenter Distributor now about costsavings you may be able to obtain by switching to Carpenter Stainless Tubing or Pipe. Remember, you are sure of getting the highest possible degree of perfection in Carpenter tubing because it must pass the most exacting non-destructive test ever applied to stainless tubing.



The Carpenter Steel Company, Alloy Tube Division, Union, N.J.

Export Dept.: The Carpenter Steel Co., Port Washington, N.Y .- "CARSTEELCO"



For More Information Circle No. 279 on Inquiry Card—Page 17PHIRCHASING

For More Information Circle No. 278 on Inquiry Card—Page 17

# If modernizing a machine takes less time than you think...

CHANCES ARE FAFNIR





BECAUSE modernizing the Faf-nir way is so simple, many machines earmarked for the scrap pile are operating efficiently today. Converting from plain bearings to Fafnir ball bearings on the polishing machine illustrated is a case in point. In figuring the costs of conversion, the cost of the ball bearing pillow blocks presented no problem. The time required to make the change and the costs of labor involved were the questionable items. When the simplicity of applying Fafnir units was demonstrated, the conversion was regarded as a good investment.

Slip-fit and positive locking collar are the two most popular features of Fafnir Power Transmission Units equipped with wide inner ring ball bearings and selflocking collars. When mounting the unit, the shaft is slipped, not pressed or forced through it . . . the collar positively locks the bearing to the shaft by a quarter turn. It's that simple. Your authorized Fafnir distributor can give you the details about this time-saving ball bearing unit. Ask him about the choice of seals too - contact or slinger type. Perhaps he can show you how to get more service out of your equipment. The Fafnir Bearing Company, New Britain, Conn.

### YOUR CHOICE OF SEALS

Fafnir standard duty pillow blocks and flange cartridges, also Flangettes, are equipped with either Mechani-Seals (slinger-type) or Plya-Seals (contact-type). Consult your authorized Fafnir distributor.

BALL BEARINGS





# FIR PLYWOOD PURCHASING GUIDE

# Insist on DFPA Grade-Trademarks

DFPA grade-trademarks attest quality, performance and value. They appear only on plywood manufactured, inspected and laboratory-tested under the DFPA quality control program to assure conformance to U.S. Commercial Standard quality requirements.



## 2. Choose the right grade for each job

DFPA quality-tested fir plywood comes in two types: 1. Exterior (waterproof glue for permanent outdoor exposure); 2. Interior (moistureresistant glue) for use indoors, temporary outdoor uses and sheathing. Within each type are appearance grades to meet the exact needs of any given job. Most popular grades are shown below: (other grades including panels made of other western softwoods, also available)

TYPICAL USE EXTERIOR-TYPE (Waterproof glue		INTERIOR-TYPE (Moisture-resistant glue	
Where appearance of both sides important. Cabinet doors, single thickness walls, etc.	EXT-DFPA-A-A	[INTERIOR · A-A-DFPA]	
Where only one side will be seen. Siding, paneling, signs, fixtures.	PlyShield (A-C)	PlyPanel® (A-D)	
Special concrete form grades. Both faces sound, solid, smooth.	rotine (B-B)  Maximum Re-use	Int. PlyForm® (B-B) Multiple Re-use	
Unsanded structural and maintenance panel. Sheathing, crating, temp- orary screening.	Exterior Glue PlyScord (C-D)	PlyScord® (C-D)	

SIZES: Standard fir plywood thicknesses are from  $\frac{1}{4}$ " through  $\frac{3}{4}$ "; standard size is 4' wide, 8' long. Other thicknesses and sizes are also available, including "king-size" scarfed panels up to 30' and 50' long.

TEXTURED FIR PLYWOOD — Fir plywood comes in several smart textured panels for special decorative applications such as siding, paneling, displays and fixtures. These include Texture One-Eleven Exterior plywood (deep parallel grove pattern, shiplapped edges) and panels with attractive brushed, striated, or embossed surfaces.

OVERLAID FIR PLYWOOD — is Exterior fir plywood with resin-fiber overlay permanently fused to one or both sides of panel. High density is hard, glossy, abrasion-resistant (use for long-lasting signs, shelving, concrete forms); Meduum density overlaid plywood is smooth, with texture similar to drawing paper (ideal paint base for signs, fixtures, siding).



FREE WALL HANGERS — Handsome 18"x33" wall hanger. Handy fir plywood grade-use-specification guide. Order one for everyone in your firm who specifies fir plywood. Also available, specification portfolio. Includes detailed description all grades, sizes, specialty panels, Commercial Standards requirements. Offer good USA only, Douglas Fir Plywood Assoc., Tacoma 2, Wash., Dept. 185.

# new products

### Sawing Machine Has Wide Range and Control



S & S Machinery Co., 140-53rd St., Brooklyn, N.Y., has on the market a highly versatile sawing machine with a complete range of speeds from 45 to 10,000 fpm. It makes the bandsawing and bandfilling machine a highly universal tool capable of cutting hundreds of materials from tough armor plate to corrugated paper. The hydraulic control of speeds, infinitely variable, provides the exact speed for particular materials and applications, enabling the machine to do the work of many tools. It comes with 36" or 48" throat.

Circle No. 73 on Inquiry Card-Page 17

### Circuit Breaker Cuts Line Wire Damage



Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa., announces a 5-kv magnetic circuit (Please turn to page 210)

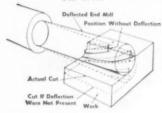
# First Improvement in End Mills in Years!



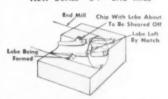
Controlled-Penetration END MILLS

> THESE ARE THE NOTCHES THAT END DEFLECTION





NEW DOALL "C-P" END MILL



PROMOTES TOOL LIFE and ACCURACY

Lobes of metal formed by notches exert controlled pressure to cutting edge-tool fatigue is minimized. Accuracy is assured.



PROMOTES FINISH

Photo shows uniform thip size and clearance produced as result of lobe formation

SIZE LISTING NO. D-675

Dia. of Mill	Dia. Shank	Length of Flutes	Over-All Length	No. of
3/0	3/0	11/2	31/4	4
1/2	1/2	2	4	4
5/0	5/8	21/2	43/8	4
3/4	3/4	3	51/4	4
1	1	4	61/2	4
11/4	11/4	4	61/2	6
11/2	11/4	4	61/2	6

notched

New End Mill minimizes deflection to give you greater accuracy and longer life with heavier feeds.

Here's the first long flute end mill specifically designed to give you better accuracy, finer finish and longer tool life by reducing deflection. Here's how it works:

Those staggered notches literally force the teeth to take a uniform bite along their entire cutting edge. The lobes which they form exert uniform pressure to provide controlled penetration for each succeeding tooth.

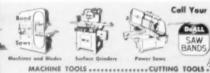
It's easy to see why these new DoALL End Mills can spell finish to ordinary end mill troubles such as: uneven wear, high breakage and expensive rework. But what's more-deflection free cutting can give you extra long tool life and phenomenal performance at the heavy feeds necessary for stainless steel and other hard to machine metals.

Your local DoALL Store is stocking the new "C-P" End Mill now. Call today or write for further details on how this new mill can give you accuracy of cut, smoothness of finish and tool life that is unmatched, anywhere. Ask for literature.



THE DOALL COMPANY, Des Plaines, III.

















Number 2 in a Screw Research Association Series on Industrial Statesmen

### ERNEST SWIGERT

stresses the importance of quality

"In the final analysis, the quality of any product depends on the pride and integrity of the maker. A reputation for quality, once acquired is like the 'Sterling' stamp on silver — an assurance to the user that the product will live up to his expectations. To adhere consistently to high standards regardless of competition is indus-

trial statesmanship at its greatest, and also the best course for continued success."

Ernest g. Swigert

President, National Association of Manufacturers President, Hyster Company

# Product Reliability for YOU in the Quality Control of Phillips Screws

There are many manufacturers of Phillips Cross-Recessed Head Screws. It is important for you to know that some of them are members of Screw Research Association for this major purpose:

To make sure that the quality of their products remains the very highest, regardless of competition. They accomplish this by rigidly controlling manufacture according to standards set up by Phillips Cross-Recessed Head Standards Committee. Product reliability in Phillips Screws demands that they be entirely trouble-free—and that they deliver every advantage inherent in the Phillips Recess design. Recess dimensions must meet the close tolerance standards established by the Phillips Cross-Recessed Head Standards Committee.

Phillips Screws made by these companies improve your products. They also reduce your production costs.



Members of Screw Research Association . . .

American Screw Company • Atlantic Screw Works, Inc. • The Blake & Johnson Co. • Central Screw Company • Continental Screw Co. • Elco Tool and Screw Corporation • Great Lakes Screw Corp. • The H. M. Harper Company • The Lamson & Sessions Company • National Lock Company • The National Screw & Manufacturing Company • Parker-Kalon Division, General American Transportation Corporation • Pheoll Manufacturing Co. • The Progressive Manufacturing Company Division, The Torrington Company • Scovill Manufacturing Company • Shakeproof Division Illinois Tool Works • The Southington How. Mfg. Company Sterling Bolt Company • Universal Screw Company • Wales-Beech Corporation

You can rely on these sources...for product reliability







(Continued from page 206)

breaker with a two-cycle interrupting time (type 50-DHHS) for use on a 4.16 kv distribution system. The 600 amp breaker has an interrupting capacity of 30,000 amp (40,000 momentary). It can be applied where conventional 150 mva circuit breakers are now used. This fast interrupting time is expected to effect considerable reduction in wire damage in clearing faults on overhead lines, thereby permitting improved continuity of service and reduced line maintenance.

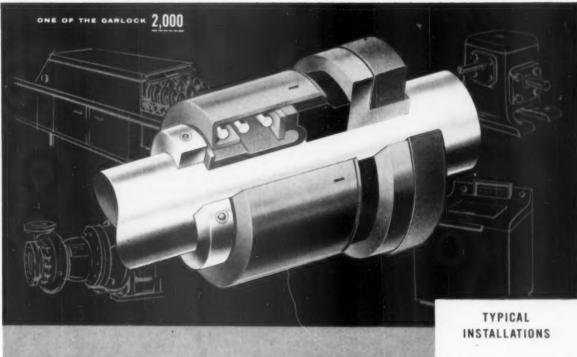
Circle No. 74 on Inquiry Card-Page 17

### Portable Hand Lamp Is Explosion-Proof



Safe, yet practical lighting in inflammable atmospheres, is claimed for an explosion-proof portable hand lamp, introduced by Crouse-Hinds Co., Wolf & North Sts., Syracuse, N. Y. It can be used, for example, in the interiors of fuel tanks during cleaning or painting operations. Weighing less than 11 lb, the fixture uses 150watt PAR-38 reflector type spot and flood lamps, which produce a concentrated light pattern. It is UL-approved for Class 1, Group C locations or Group D locations. The fixture's cone shaped body is ridged with heat-dissipating

Circle No. 75 on Inquiry Card-Page 17



# THE PACKAGED SEAL

# of a hundred uses

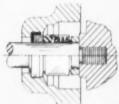
This Garlock MECHANIPAK\* Seal BB-21A has proved itself on hundreds of jobs, sealing against water, oils, alcohol, mild acids, and solvents. It's ideal for shafts on centrifugal pumps, automatic washers, speed reducers, commercial dishwashers... wherever pressures do not exceed 150 psi.

Withstands temperatures to 212° F. with standard bellows or up to 400° F. with silicone rubber bellows . . . shaft speeds to 2000 fpm and higher depending on operating con-

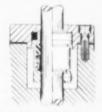
ditions. Sizes for 3%" to 3" dia. shafts. Mechanical drive arrangement is engineered to eliminate slippage and simplify installation.

The BB-21A is another important part of "the Garlock 2,000"... two thousand different styles of packings, gaskets, and seals to meet all your needs. The only complete line. That's why you get unbiased recommendations from your Garlock representative. Call him today or write for Catalog AD-150.

\*Registered Trademark



Centrifugal pump installation where stationary seat fits in housing and impeller provides stop for seal. A cup type vibration ring holds stationary seat. (Vibration ring design optional.)



Vertical shaft installation where lock-nut positions seal on shaft and stationary seat is in gland. A square vibration ring is used to hold stationary seat. (Vibration ring design optional.)

THE GARLOCK PACKING COMPANY, Palmyra, N. Y.

For prompt service, contact one of our 30 sales offices and warehouses throughout the U.S. and Canada.





Packings, Gaskets, Oil Seals, Mechanical Seals, Rubber Expansion Joints, Fluorocarbon Products

# Blanket Purchase Orders for Office Supplies

Fewer people needed in purchasing department as a result of using blanket PO's for office supplies. Innovations in use of purchase order register streamline expediting operations.

By Paul F. Stolpman

Purchasing Agent, Pacific Northwest Pipeline Corporation, Salt Lake City, Utah

ONE of the prime factors in cost control is maintaining department personnel at a fixed figure—neither overstaffed nor understaffed. Assuming that the middle of the road factor is undeterminable the department head is obligated to understaff. He thereby, minimizes salary outlays and eliminates employees, office space, and equipment that may not otherwise be utilized to best advantage.

Since we believe in "practicing what you preach" we started operations in August, 1956, understaffed. To move from Houston, Texas to Salt Lake City, Utah with a staff reduced by 75% was a bitter pill to swallow. Problems that hitherto seemed insignificant, at once became major problems. Two of these problems that have been overcome, with no increase in personnel, are the procurement of office supplies and the expediting function. We established a procedure of office supply procurement that has minimized cost from the standpoint of purchasing department personnel and product purchased.

Pacific Northwest's office services section which is charged with the responsibility of maintaining approximately 2,700 items of stationery and office supplies, for distribution to some twenty

locations-from New Mexico to Canada-prepared a list of stock items. This list of materials was submitted to the various stationers with an invitation to bid. On the basis of the quotations received, blanket purchase orders were prepared (on a yearly basis). The office services section and accounting department disbursement section were forwarded copies of the purchase orders and applicable quotations for the explicit purpose of authorizing designated office services personnel to telephone orders directly to the stationer whose price on that item is the most competitive.

This policy eliminates the need of the purchasing department to consistently negotiate prices and/ or sources of supply. It also presents an opportunity for those who are authorized to initiate orders for this type of material to acquaint themselves with the potentials of savings through purchasing. This experience may well serve as the background that may later qualify them for buying positions in the purchasing department. The accounting department copy of the quotation serves as a price list that accountants may refer to when processing invoices and spot checking competitive costs. The purchasing Department, of course, has retained the prerogative of spot checking as well as reviewing vendor commitment reports periodically to assure that the business is equitably distributed.

### Blanket Order Requirements

Other important factors that are made a part of the blanket order

- 1. Terms of payment 2%—10 proximo (thereby minimizing the accounting function and eliminating the necessity of mailing more than one check per vendor, per month)
- 2. All items delivered (under the terms of the blanket purchase order) must be accompanied by an invoice in quadruplicate. The original and two copies are retained by the Pacific Northwest representative receiving the material. The fourth copy is signed, indicating receipt of the material thereon and handed back to the deliverer. The original invoice is signed by the recipient, evidencing the fact that the material described thereon has been received, thereby eliminating the need for, and the preparation of a receiving
- 3. Invoices so rendered are re-

quired to be marked in accordance with Pacific Northwest policy, i.e., each month is assigned a letter of the alphanet: A, B, C, etc., and the numerical sequence is continuous throughout the year-tor example, January 1, Invoice #A-1, February 2, #B-27, etc. The purpose of this special numbering system is to assure the accounting department that all invoices for a respective month have been received. After the usual accounting department verification the monthly payment can be released to the vendor with the knowledge that all obligations incurred for that period have been met.

4. The final statement on the blanket purchase order is to the effect that "other than duly authorized purchasing department personnel, only the following Pacific Northwest employees have been designated to initiate purchases: names listed".

This type of blanket order has been accepted with such enthusiasm by all concerned that the procedure has been extended to suppliers of paper, janitor's supplies, blueprinting and reproduction service, rubber stamps, carbon paper and machine ribbons.

### **Expediting without Expediter**

The other purchasing function that has been minimized successfully is expediting. Since the purchasing department budget did not provide for the services of a full time expediter (for operating material) it was concluded that this function would be handled in conjunction with buying. This combination of duties presents the problem of what comes first-should the buyer tackle the problem of expediting old orders before he commences the function of negotiating new purchases, or, vice versa. A typical insolvable "what comes first, the chicken or the egg" riddle.

The fact that we maintain a purchase order register has practically solved this problem, as well as eliminated pulling and refiling purchase orders for expediting purposes. Our purchase order register is maintained the same as, probably, every other company that maintains a like record.

Two innovations have been made:

1. A red check (√) mark is

inserted between the requisition number and purchase order number, signifying that the purchase order has been written and the purchase order and requisition numbers have been verified, thereby eliminating the possibility of duplicating purchase order numbers.

Receiving reports are di-rected to the buyer who maintains the purchase order register. The buyer cross references the purchase order number that is noted on the receiving report with the number that appears on the purchase order register. A red R is penciled between the date and vendor column, indicating that the material covered by the transaction has been received. This system serves as a handy tickler reference. A glance at the vendor and type of material involved offers a ready clue as to the necessity of expediting. It is amazing how this seemingly insignificant mark (R) saves many hours of filing time, as well as directs immediate attention to a particular order that deserves expediting

	PACIFIC NORTHWEST PURCHASE ORD		PORATION	
REQUISITION NO.	PURCHASE ORDER NUMBER	DATE	VENDOR	MATERIAL
				-

# office equipment



A shipping stencil, coated with carbon on one side to permit typing or handwriting with business forms, has been developed by Weber Marking Systems, Mount Prospect, Illinois. Called the Carbon-Cote Tab On Weber Stencil, it is tabbed over the "ship to" area of the order-invoice or bill of lading form and prepared as a by product of the forms writing, and then used to address labels, tags or cartons. The stencils can be prepared with single unit or continuous forms, can be prepared on standard or electric typev riters, automatic accounting machines, Teletype, Flexowriter, and other business machines.

Circle No. 76 on Inquiry Card-Page 17



Designed to handle a large volume of personalized repetitive correspondence, the American Automatic Typewriter Company, Chicago, announces the development of the new Dual Selector Auto-typist. The new model may be used with any standard electric typewriter, operating at speeds up to 150 words a minute, without error, and accommodates two record rolls, with a total ca-

pacity of 500 typewritten lines in the form of individual paragraphs or separate complete letters. The dual push-button selector will carry 100 or more different paragraphs, from which any combination of paragraphs can be automatically selected and typed.

Circle No. 77 on Inquiry Card-Page 17



General Binding Corporation of Chicago announces the perfection of an economical plastic loose-leaf binder that can be used in connection with their binding equipment. Its central feature is a unique plastic back that slides off a specially molded track, instantly opening the rings of the plastic binding. Only one small piece of equipment is required to prepare the material to be bound with the correct punch pattern. The binding element is then inserted through the punched holes and the plastic slide back slips into place, and automatically locks the binding.

Circle No. 78 on Inquiry Card-Page 17

A new low-priced sensitized aluminum offest plate, named DupliKator has been introduced recently by Lithoplate, Inc., El Monte, California, a subsidiary of Harris Seybold Company. DupliKator plates come packaged in boxes of 50 and 100.

Circle No. 79 on Inquiry Card—Page 17



A completely automatic electric stapling machine that uses standard size staples has been introduced by The Bates Manufacturing Company, Orange, New Jersey. Bates has incorporated many safety features into the machine and has made it practically foolproof and soundproof in operation. Another feature of the stapler is an adjustable depth gauge that permits the machine operator to place the staple in the same position on the paper every time the machine operates. Circle No. 80 on Inquiry Card-Page 17



The Hamilton Manufacturing Corporation, Columbus, Indiana, has added a square coffee table to its line of Cosco business furniture. Designated model 551, the new table stands 16" high and measures 30" square. Other occasional tables in the Cosco line are a rectangular coffee table, a corner table, a stop-end table and a chairside table.

Circle No. 81 on Inquiry Card-Page 17

# **VENUS CROSSED THE PEN AND PENCIL**

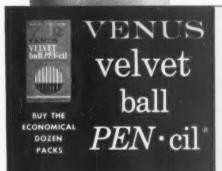


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writing tool for the office

> Are you taking advantage of the remarkable new Venus Velvet ball PEN cil for your office? Leading firms in business and industry from coast to coast are equipping their personnel with this great new writing tool. Here's why it improves efficiency and lowers costs: it combines the best features of a pencil and ball pen . . . wood barrel has lighter, comfortable feel of a pencil ... no point to wear down or sharpen . . . finest ball mechanism ...ink supply lasts longer...comes in 4 styles for every writing job. Regular: for all general-purpose writing. Double Duty: double ink supply doubles writing mileage. Super Fine: for extra-fine writing. (All in choice of blue, black, red or green ink.) Liquid Velvet Lead: for Liquid Graphite pencil writing and erasability. 29c - 39c each. Less by the dozen. Order from your stationer.





Try the Venus Velvet ball PEN cil in your office.

### MAIL THIS COUPON

Venus Pen & Pencil Corporation, Hoboken, N. J., Dept. P-6 Please send me a sample of the Venus Velvet ball  $PEN\cdot cil$ 

Company Name\_\_\_\_\_Address\_\_\_\_\_

City\_\_\_\_State\_

Stationer's Name\_\_\_\_\_

Check style desired here:

Regular

☐ Double Duty
☐ Super Fine

Lead PEN cil



# **Purchasing Executive 1957**

Kardex\* Visible enables him to bettercope with the divergent problems of many departments. One minute he's in engineering, the next in production, then in maintenance or accounting...and top management too!

Few seem to realize the importance of today's Purchasing Executive! His department is now geared into the overall plans and operations of the entire business organization. His task is creative...his responsibility tremendous! To be master of the situation he must have the finest possible record-keeping tools—tools enabling him to make immediate sound decisions from moment to moment—all perti-

nent facts available at finger tips, and in an organized way!

That's exactly what KARDEX Visible is designed to do. Result: they save all kinds of time—no end of money (and make life worth living for the Purchasing Executive).

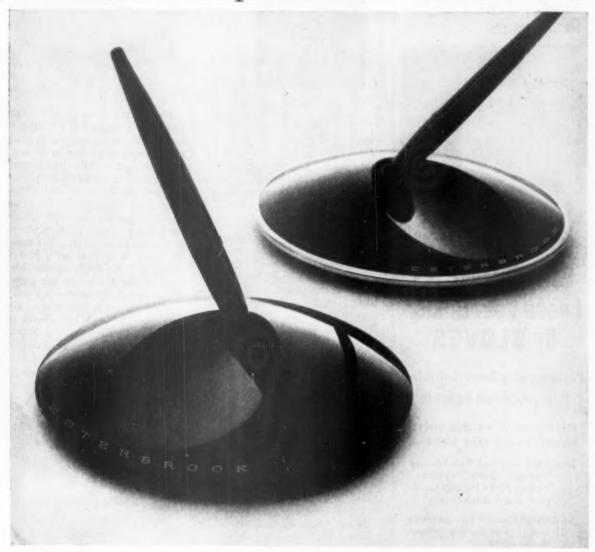
Just to get a rough idea of what they may do for you, see page 3 of free booklet X1202. You'll be able to gauge in minutes what might be accomplished! Write Room 1604, 315 Fourth Avenue, New York 10—ask for X1202.

# Remington Rand

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# ESTERBROOK presents the RECORDER\*



# Now a truly dependable ball point desk set

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This amazing Wordathon Refill Cartridge comes in your choice of red, blue or black ink . . . fine or medium ball sizes. Try the new Esterbrook Recorder desk ball point soon. \$2.95 at list for the complete set. Recorder de luxe, \$3.95.

WORDATHON BY Esterbrook

Wordathon\* Cartridge shown full size

TRADEMARK

Esterbrook

For More Information Circle No. 287 on Inquiry Card-Page 17

### first new binder development in 25 years



# VINYL EMBEDMENT Loose Leaf Binder by SLOVES

Permanently Seals Anything Reproduced on Paper in

ELECTRONICALLY FUSED VINYL PLASTIC LOOSE LEAF BINDERS

DURABLE — Vinyl Embedment binders have extraordinary Flex-Life and superior Scuff-Resistance.

ECONOMICAL — You can use overruns of anything reproduced on paper.

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COLORFUL — Use any printed literature, photos or printed sheets for greater sales impact.

VERSATILE — Tie-in ad campaigns, new facilities, product announcements or any vital development.

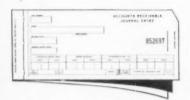
Facilities available for Designing, Printing, and Silk Screening.

Write for Details -

SLOVES MECHANICAL BINDING CO. 601 West 26 Street - New York, N. Y.

For More Information Circle No. 288 on Inquiry Card—Page 17





Tab Card Sets, consisting of tabulating cards and manifold copies combined in one set to provide an original entry tabulating card and record copies produced at the initial writing, have been introduced by Moore Business Forms, Inc., Niagara Falls, New York. Made for use with any kind of tabulating equipment, the sets are flexible in design and construction to meet individual systems needs. Sets can consist of one or more copies as required and the tabulating card can be the original or the copy. Doubleface carbon can also be supplied so the cards can be used in scanning systems.

Circle No. 82 on Inquiry Card-Page 17



Lightweight panels containing from 25 to 100 clear plastic tubes (in 17" and 40" widths). Tubes are individually removable and easily shifted from one position to another. Easily adapted to practically any kind of control records. Various sizes and colors of signals offer limitless signalling and charting poss.bilities. Acme Visible Records, Inc., Crozet, Virginia is the manufacturer.

Circ'e No. 83 on Inquiry Card-Page 17



The American Photocopy Equipment Company, Chicago, is now producing an electric, automatic paper dispenser to be used in conjunction with their Apeco Dial-A-Matic Auto-Stat photocopying machine, or with other photocopy equipment. The new paper dispenser protects photocopy paper from light exposure and automatically ejects one sheet of paper at a time with just a touch of the electric ejector bar. This all-electric, automatic paper dispenser also features an easy loading principle and simple adjustments to hold 100 sheets of any one of the standard photocopy paper sizes, with a maximum of 81/2" x 14".

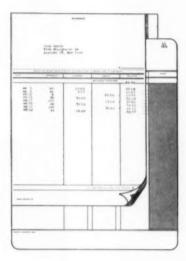
Circle No. 84 on Inquiry Card-Page 17



An advanced version of its duplex calculator has been announced by the Monroe Calculat-Machine Company, Inc., Orange, New Jersey. The new machine, called the 88-N, offers all the advantages of the previous model, plus two important new features: selective automatic division, which makes it possible to divide from the accumulating dials as well as from the lower result dials; and exclusive threefactor multiplication, enabling it to enter the result of an addition, subtraction or multiplication as an automatic multipler without setting keys.

Circle No. 85 on Inquiry Card-Page 17

# CUT STATEMENT AND POSTING TIME



### ...with Moore-designed Carbon-Ready Statements

Here is a one-writing set with so many advantages that most users save time and money from the start. It lowers cost, speeds billing and collections, eliminates copying errors and levels off peak work loads.

The Moore Carbon-Ready Statement has built-in carbon and is a self-contained form for all important billing records. It's engineered for use on all leading makes of bookkeeping and accounting machines. It makes separate ledger operations unnecessary—entries are posted to statement and ledger sheets at the same time, and can be filed together as a unit.

This is one of many forms and systems Moore designs to assure you smooth work flow and economy of operations. Moore can help meet rising costs with a really efficient office system. Call or write the Moore man—he's in the telephone directory.

### MOORE BUSINESS FORMS





**DYE KITCHENS**—here, chemicals are mixed and pumped *continuously* into coating machines, so that variations are eliminated... and your prints always come out *uniformly* sharp, clear.



**CURL PREVENTION**—"back wetting" process treats *uncoated* side of paper, too! As a result, prints start *flat*, and stay *flat*. Curl of any type—temporary or permanent—is never a problem.

AIR KNIFE—precision Ozalid "air-knife" process blows excess solution from paper, as no other method can. Result? Prints free of streaks or blotches . . . constant, dependable speed.



ere's what makes



**TESTING**—Ozalid "sensitometer" checks printing speed of newly coated paper. It's just one of dozens of similar tests that mean daily, dependable performance for you.



### the difference in the whiteprint papers you buy

The carload of paper you see just above was made for one purpose only—whiteprint coating by Ozalid! . . .

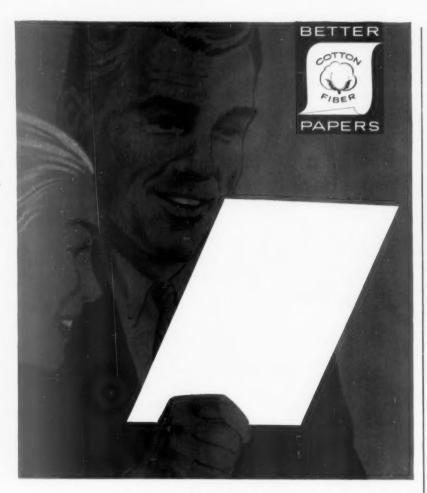
Since Ozalid is far and away the world's largest coater of dry diazo paper—mills run paper specifically for us, to our rigid specifications. Therefore, we get paper that's brighter and stronger to begin with...lasts longer...folds better.

And that's just the start. At every succeeding stage of processing—from solution mixing to final testing—Ozalid alone provides the rigid quality control that actually makes a big difference in the prints you produce.

To see this difference why not test run Ozalid papers yourself? Simply call your local Ozalid representative, or write Ozalid, Dept. L-6, Johnson City, N. Y.



for consistently finer prints



# Yes, "BETTER PAPERS ARE MADE WITH COTTON FIBER" And WESTON BOND proves it

Because it is made better with cotton fiber, WESTON BOND has all the beauty of finish, all the impressiveness and character you look for in a letterhead paper.

Against the sparkling brightness and uniform texture of WESTON BOND, typing looks neater, cleaner... letters look more inviting, easier to read. See for yourself the difference cotton fiber can make. Ask your printer to use WESTON BOND on your next lot of letterheads.

WESTON BOND is available through your favorite printer in white, colors, white opaque, white litho finish and envelopes to match with instant sealing flap gum. Write for a sample book. Address Dept. PN.



### BYRON WESTON COMPANY

Makers of Papers for Business Records Since 1863

DALTON, MASSACHUSETTS

# WESTON BOND

Cotton Fiber Quality Letterhead Paper

For More Information Circle No. 291 on Inquiry Card-Page 17

# office equipment



Glare-free, shadowless lighting is spread evenly throughout the room by a new ceiling-size floating fixture introduced by Curtis Lighting, Inc., Chicago. Called Strato-Lux, the fixture is a large area luminaire supplied as a complete unit to the electrical contractor. The entire luminaire is suspended from the lighting grid, which is attached to the ceiling. The fixture, which is actually a packaged lighting system, consists of two parts: a ceiling-installed fluorescent grid system, and a suspended T-hanger aluminum framework, which holds the vinyl plastic louver-diffuser panels.

Circle No. 85 on Inquiry Card-Page 17



Designed primarily as a low cost portable display stand or table for trade shows, Porta-Table also makes a handy parts or work table in factories, offices or show rooms. Contained in a four foot by fourteen inch carrying case, weighing 25 pounds, it is manufactured by Kruse Advertising Displays, Carlstadt, New Jersey. Circle No. 87 on Inquiry Card—Page 17

# HERE'S A "PLUS"

# that is yours, free and clear

... a feather in your cap. For this is certain to be a recommendation that will win you approval on all counts — from all sides. It will help **you** when you specify office furniture that combines efficiency with economy.



# Versa-Line STEEL OFFICE EQUIPMENT

These fine, movable pieces enable you to provide better, more efficient, work areas — at an actual saving in floor space. You have increased efficiency throughout the office — this cost item becomes increasingly important each day.

Versa-Line comes in a wide variety of individual units, so that you can arrange just the desk space, table room and filing capacity that is indicated in each particular situation. The colors and finishes

harmonize with the smartest office decor. Versa-Line gives you new office efficiency at low cost.

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Please send me the free Security Versa-Line Catalog No. 456.

Name Title

Company

Street

City. Zone State

For More Information Circle No. 292 on Inquiry Card-Page 17

# STOP-LOK







Heavy Duty Compression-Expansion Loose Leaf Binders with AUTOMATIC 'STOP-LOK' . . . LOCKS IN ANY POSITION

- Binder will compress from this point, but will not open further.
- Covers will not separate until release is activated.
- Easily made sheet changes with positive transfer bar.
   Triple ball bearing lock won't wear out.

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And why not? Consolidated,

with the most modern plant

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for every purpose - standard stock forms, tabulating

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forms to meet the most rig-

Send Your Form for Prompt Quotation, Write for Catalog P.

id specifications.

SLOVES

MECHANICAL BINDING CO.

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For More Information Circle No. 293 on Inquiry Card-Page 17

### Carey Experts Know



### How To Save You Dough

Big run jobs have you on the run? Take a tip from leading firms and consult Carey. Round-the-clock operation, roll fed presses, inventory roll stock and sheeting equipment meet and service any quality demand at substantial savings. Why wait for deliveries when you can call Carey Press...ask for

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For More Information Circle No. 294 on Inquiry Card—Page 17 224 30 Vesey St., N. Y. 7, N. Y. BArclay 7-3687

For More Information Circle No. 295
on Inquiry Card—Page 17

CONSOLIDATED

BUSINESS SYSTEMS, INC.

# office equipment



A new lightweight, more compact model of the Thermo-Fax "Secretary" copying machine, featuring restyled design and push-button control has been announced by Minnesota Mining and Manufacturing Company. The new model weighs twenty pounds less than the earlier model. The new step-front cabinet provides a working area immediately adjacent to the paper intake louver and permits easier entry of paper into the machine. Circle No. 88 on Inquiry Cord—Page 17



Apsco Products, Inc., Los Angeles, California is now distributing a new clamp-on unit for office telephones that offers the user new hearing comfort and hearing ease. The Hear Muff slips easily onto the hearing portion of the telephone and presents a durable plastic foam surface to the ear so that even the longest conversation is not tiresome. The unit will not tear or wear off, is simple to clean, and reduces outside noises to a minimum. Available in two model sizes, it will fit not only the standard telephone, but also the new modern instrument.

Circle No. 89 on Inquiry Card-Page 17



# IT CUTS YOUR STAPLE COSTS 25%...and SPEEDS WORK!

**NEW "FEATHER TOUCH"** 

# Swingline 66



EXCLUSIVE "OPEN CHANNEL" for easiest possible loading. Both models supplied with non-slip rubber gasket.

# ELECTRIC STAPLER

New SWINGLINE 66 makes "light" of heavy stapling work. Operated electrically by just a "Feather Touch", it staples up to 40 sheets together at once...gives a perfect "clinch" every time. There's no pounding, no jamming, no wasted time nor discarded staples.

Swingline INC., Long Island City 1, New York World's Largest Manufacturers of Staplers for Home and Office

Ask your stationery or office supply dealer for a free ten-day trial. You'll quickly find out how SWINGLINE 66 pays for itself in staple savings and increased efficiency.



SWINGLINE 66P, foot pedal model, . Binderies priced for big volume selling at

only \$3575" \*Slightly bigher in the West

Satisfied users include: Super markets

· Department stores · Airline Ticket offices

General Business offices · Shipping departments · Mailing houses



DIA OFFICE STAPLER



AND IT'S ONLY \$2975

" Tot "50" POCKET STAPLER "



#27 OFFICE STAPLES

For More Information Circle No. 296 on Inquiry Card-Page 17

# association news

### **Educational Buyers Hold Outstanding National Convention**

THE Sheraton-Gibson Hotel in Cincinnati, Ohio was the site of the thirty-sixth annual convention of the National Association of Educational Buyers. Over 300 members and guests attended.

Planned as a "work convention", it lived up to the expectations of Bert C. Ahrens, executive secretary of the N.A.E.B.

Registration began and the exhibits opened early Tuesday afternoon, but the official program did not begin until Wednesday morning.

M. T. Tracht, assistant treasurer, Illinois Institute of Technology, and president of the national association; and Foster J. Cole, business manager, Miami (Ohio) University, and chairman of the host committee along with Charles P. Taft, Mayor of Cincinnati, gave warm welcoming addresses to the attending members from all over the country.

They were immediately followed by the first of a long list of enlightening talks. F. L. Abbott, treasurer and controller, Barnard College, spoke on, "The Transition from Purchasing Agent to Business Officer."

J. G. Vann, assistant controller and business manager, North Carolina State College of Agriculture and Engineering then spoke on the subject, "What Type Business Survey for Your Institution?"

Robert Keeton, from the Department of Economic Research, Proctor & Gamble Company started off the afternoon by talk-



T. A. Corcoran, The Courier-Journal and The Louisville Times.



J. G. Vann, North Carolina State College of Agriculture and Engr.



F. L. Abbott, Treasurer and controller, Barnard College.

ing about, "Buying Policy as Affected by the Business Outlook."

The balance of the afternoon session was devoted to the always-popular "question box" conducted and moderated by Bert Ahrens.

"A Forward Look in College Construction," was the topic of Robert Bokelman, U. S. Office of Education on Thusday morning.

Clark Laurie, business manager, Utica College of Syracuse University was the middleman on the morning program and his subject was, "The Purchasing Agents Role in Budget Preparation and Control." In his talk, Mr. Laurie said, "The purchasing agent can make a significant contribution, not only to the budget operation, but also to many business management projects. To do so, however, he must be considered not iust a manager of a department. He must be recognized by the chief business officer as an important member of the business management organization."

An interesting and informative morning was topped off with a talk by T. A. Corcoran, director of purchasing for The Courier-Journal and The Louisville Times, former president of the National Association of Purchasing Agents and J. Shipman Medallist. Mr. Corcoran's subject was, "Imagination in Purchasing."

Thursday afternoon and Friday morning were devoted to twelve workshops. The attendance at each was extremely high—in fact, there was "Standing Room Only."



# Why worry about Batteries...

# Specify gould and relax



Dependable battery performance day in, day out is worth more to you than any other single benefit. Right? That's why Gould has carefully perfected the design of Gould Batteries over long test years. Manufacturing techniques at Gould are also the result of patient development, so that today you are assured of maximum power, long life, and trouble-free operation with every Gould battery you buy. Ask for new booklet"...so you're going to buy an industrial battery." Write Gould-National Batteries, Inc., Trenton 7, N.J.

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Always Use Gould National Automobile and Truck Batteries More Power to you from Gould

# association news

### N.A.E.B. CONVENTION

(Continued)



Paul Nestor, University of Kentucky, (left) explains his purchasing system to Bruce J. Partridge, Rochester Institute of Technology.



New executive committee: (left to right) Bruce Partridge, Rochester Institute of Technology; George W. Warren, University of Maryland; Jack S. Reaves (new president of N.A.E.B.), University of Florida; Carl Donaldson, University of Nebraska; and John A. Pond, University of Colorado.



Ian Morrison, Royal Metal Manufacturing Company, discusses the value of his company's chairs to one of show visitors. Royal Metal was one of the more than fifty companies taking part in the exhibit.



Friday at 4:08 P.M. The convention formally closed a few minutes after four o'clock and the executive secretary, Bert C. Ahrens, (left) sat down for the first time in four days.



Norman Agnew, University of Alabama (right) waits with Mr. Pratt, University of Kentucky, for one of the sessions to start.



Bike experts-like the one above-demand reliability . . . and that's where Alan Wood enters the sales picture.

The tubing in this Chain Bike Corporation product is formed from Alan Wood cold rolled sheet by Berger Machine Company. The sheet delivered by Alan Wood is of excellent quality, its reliability assured by Alan Wood's product control from ore to finished product. To this, add the services of Alan Wood metallurgistsalways available to give the expert assistance that has helped solve hundreds of production problems for our customers.

To the tubing manufacturer, these contribu-

tions-consistent high quality of a basic marerial, and service-help assure efficient production runs, cut slowdowns and rejects. The bike manufacturer gets the selling advantage of a reliable material.

To the "no hands" bike expert this all adds up to "I'm gonna tell Jimmy to get a bike just like mine. It's rugged!"

Let Alan Wood cold rolled steel—and service work to your advantage. For complete information write Marketing Div., Dept. CR-S68.

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IRON PRODUCTS Swede" pig iron

STREE PRODUCTS Plates (sheared)
A.W. Dynallay
(high strength
steel)
Hot rolled sheets
Hot rolled strip
Cold rolled strip
Cold rolled strip

ROLLED STEEL FLOOR PLATE A.W. ALGRIP

A.W. SUPER DIAMOND pattern COAL CHEMICALS

A.W. CUT NAILS Standard & Hardened

MINE PRODUCTS Iron are concentrates

Foundry, industrial & metallurgical

PRNCO METAL PRODUCTS DIVISION Steel cabinets, lockers & shelving



# Get off-the-shelf delivery of

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The Young & Vann Supply Co.
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CONN. BRIDGEPORT 1
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HARTFORD 1 WATERBURY The White Supp upply Co. FLA. The Cameron & Barkley Company MIAMI 5 neron & Barkley Company The Cameron & Barkley Company ORLANDO The Cameron & Barkley Company
ATLANTA 3
Pye-Barker Supply Company
ATLANTA 9
Southern Tool Distributing Co. GA. SAVANNAH The Cameron & Barkley Company AURORA Dietz Industrial Supply Co. CHICAGO 6
Samuel Harris & Company CHICAGO 6

ALA.

Screw Machine Supply Co.
DECATUR dustrial Supply Co. Miller Industrial Supply C PEORIA 2 Couch & Heyle, Inc. QUINCY James Supply Company ROCKFORD Rockford Tool & Transmission Co. Samuel Harris & Company SPRINGFIELD & Company Samuel Harris & FORT WAYNE 5 Tools & Abrasive The Browning Tool & Supply Co. Inc. INDIANAPOLIS 9 Vannegut Hardware Company
SOUTH BEND 24
The South Bend Supply Company
HOWA DAVENPORT dware Company Davenport Engineering Co. SIOUX CITY 2 Sioux Machinery & Supply Co.

KANS. WICHTA 7

Elifeldt Machinery & Supply Co. KY. LOUISVILLE 3 LOUISVILLE 3
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The L. A. B. MD. BALTIMORE 2

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The W. L. Reynolds Co.
MASS. BOSTON 19

Arthur A. Crafts Co., Inc. WEST SPRINGFIELD ood Adams Corporation

MICH. BATTLE CREEK rare-Mill Supply Co. BENTON HARBOR

Kendall Industrial Supply Co. DETROIT 20 Tool & Supply Company The B-H Tool & Supply Company
DETROIT 34
The Chos. A. Strelinger Co.
FERNDALE
Starling Supply Company
FLINT 2
Geo. W. Hubbard Hardware Co. GRAND RAPIDS 9

A. L. Holcomb Company
JACKSON alin Company C. E. Hamlin Kendall Hardware—Mill Supply Co.

LANSING 29
Mill Supplier Community Mill Supplies Corporation
MUSKEGON
Musk Muskegon Hardware & Supply Co.
PORT HURON Beard Campbell Company
SAGINAW
Mohar Tool Supply Co., Inc.
MINN. MINNEAPOLIS 1 The John C. Eide Company MINNEAPOLIS 4
The Satterlee Company
MISS.
JACKSON
Dilworth of Mississippi, Inc.
Oliver H. Van Horn Co., Inc. istrial Equipment Co. KANSAS CITY 6 Elifeldt Machinery & Supply Co. ST. LOUIS 10 ord-Wright Machinery & Supply Co. NES. OMAHA 2 bach Company N.J. KEARNY
A. N. Nelson, Inc. A. N. Nelson, inc.
NEWARK 2
Squier, Schilling & Skiff, Inc.
Division of Alban Corporation
TRENTON 8
Wiley-Hughes Supply Co., Inc.
WOODBRIDGE
Hansen & Yorke Co. of New Jersey

# END DELIVERY DELAYS, BY ORDERING CARBOLOY.



# CARBOLOY products from these 147 Distributors

N.M.	ALBUQUERQUE Gorman Engineering Co.	OHIO	DAYTON 2	TENN.	CHATTANOOGA
M.Y.	ALBANY 1		The E. A. Kinsey Company		Mills & Lupton Supply Co.
			LIMA		KNOXVILLE 1
	Sager-Spuck Supply Company, Inc.		McKee Tool & Supply Co.		The W. S. Murrian Company
	BINGHAMTON		TOLEDO 1		MEMPHIS 2
	Syracuse Supply Company		Mill & Factory Supply Co.	TEXAS	J. E. Dilworth Company
	BROOKLYN 31		WARREN	ILANO	DALLAS 22
	A. N. Nelson, Inc.		Reese Hardware & Supply Ca.		Briggs-Weaver Machinery Co.
	BUFFALO 2	OKLA.			DALLAS 1
	R. C. Neal Company, Inc.		Duncan Equipment Co.		Tool Supply & Engineering Co.
	BUFFALO 23		OKLAHOMA CITY		EL PASO
	Austin Ford Lagran, Inc.		Marshall Supply & Equipment Co.		El Pasa Saw & Belling Supply (
	ELMIRA HEIGHTS		TULSA 1		Mine & Smelter Supply Co.
	R. C. Neal Company, Inc.		Marshall Supply & Equipment Co.		FORT WORTH
	MASSENA	ORE.	PORTLAND 9		Briggs-Weaver Machinery Co.
	Syracuse Supply Company		The General Tool Company		Oliver H. Van Horn Co., Inc.
	NEW YORK 7		PORTLAND 4		Tool Supply & Engineering Co.
	Hansen & Yorke Co., Inc.		J. E. Hoselfine & Company		HOUSTON 11
*	ROCHESTER 3	PA.	ALLENTOWN		Briggs-Weaver Machinery Co.
	R. C. Neal Company, Inc.		Wm. H. Taylor & Ca., Inc.		A. J. Rod Company, Inc.
	ROCHESTER		ERIE		HOUSTON
	Syracuse Supply Company		Erie Mfg. & Supply Corp.		Oliver H. Van Horn Co., Inc.
	SCHENECTADY		HARRISBURG		LONGVIEW
	Syracuse Supply Company		Raub Supply Company		Tool Supply & Engineering Co.
	SYRACUSE 1		KINGSTON		LUBBOCK
	Syracuse Supply Company		Harris Hardware & Supply Co., Inc.		Tool Supply & Engineering Co. WACO
	UTICA		LANCASTER		Tool Supply & Engineering Co.
	Syracuse Supply Company		Raub Supply Company	UTAH	SALT LAKE CITY 1
N.C.	CHARLOTTE		PHILADELPHIA 7	UTAH	The Mine & Smelter Supply Co.
	Atlas Supply Company		Alden Supply Company, Inc.	VA.	NORFOLK 1
	The Henry Walke Co.		PHILADELPHIA 28	VM.	Empire Machinery & Supply Co
	GREENSBORO		Theo, C. Ulmer, Inc.		NORFOLK 10
	Remco Supply, Inc.		PITTSBURGH 3		The Henry Walke Co.
	WINSTON-SALEM		Harris Pump & Supply Company		RICHMOND 15
	Atlas Supply Company		SCRANTON 2		Industrial Supply Corporation
OHIO	AKRON 4		The Bittenbender Co.		ROANOKE B
	Service Tool & Supply Co.				Tidewater Supply Company, Inc
	CANTON 11		WEST READING		WAYNESBORO
	Service Tool & Supply Co.		Seaman Mill Supplies, Inc.		Mize Supply Company
			WILLIAMSPORT 34	WASH.	SEATTLE 4
	CINCINNATI 2 The E. A. Kinsey Company		Lawry Electric Company, Inc.	** *******	J. E. Haselline & Company
		R.L.	PROVIDENCE 1		SPOKANE 2
	CLEVELAND 13		Providence Mill Supply Co.		J. E. Haselline & Company
	Strong, Carlisle & Hammond Div.	S.C.	CHARLESTON	W. VA.	CHARLESTON 26
	White Sewing Machine Corporation		The Cameron & Barkley Company	*** ****	Baldwin Supply Company
	COLUMBUS 8		GREENVILLE	WIS.	MILWAUKEE 16
	The E. A. Kinsey Company		Pae Hardware & Supply Co.		Rickert Industrial Supply Ca.
	DAYTON 1	S.D.	RAPID CITY	т.н.	HONOLULU 1
	Dayton Supply & Tool Co.		The Balbach Company		American Factors, Ltd.

# REDUCE YOUR INVENTORIES CEMENTED CARBIDE PRODUCTS

Whether you need one item — or up to fifty packages — you'll profit in many ways when you do business with your Authorized Distributor of Carboloy cemented carbides.

You can reduce inventories by using his local stockroom as your own. You'll save on handling and ordering costs by buying from a single source. You'll eliminate the cost and delays of "long distance" deliveries.

Whether you need standard tools, blanks, inserts, or toolholders, your Carboloy Distributor can deliver from his shelf to your machine in not much more time than it takes to phone in your order.

Authorized Carboloy Distributors can fill your

orders faster, because they carry the largest stocks of carbide products in the industry. They back up their complete stocks and fast deliveries with expert technical assistance. Their men are factory-trained by the nation's largest and most experienced manufacturer of cemented carbides.

The name of your local Authorized Carboloy Distributor is listed above—and his phone number is in the Yellow Pages of your telephone directory. Call him today . . . and get acquainted with the many services only he can offer. Metallurgical Products Department of General Electric Company, 11143 E. 8 Mile Ave., Detroit 32, Michigan.

Progress Is Our Most Important Product



# association news

# **Cut Your Traffic Costs**

HERE IS A tendency, generally, in business to regard traffic as an irksome overhead item, but actually this department of operations is just as creative as production or sales. Without this highly specialized service, our business economy could not function. After all, we do have to pay for the movement of goods and materials from the points where they are created to the places where they are used.

Importance of the traffic function can be illustrated by a look at the lumber and plywood industry. There, the costs of transportation approach one-third of the total costs—in excess of \$30 million per year, in the case of General Pacific Corporation.

As purchasing people, you are mainly interested in where savings can be made. A good place to start is in determining correct transportation rates involved in the goods being moved.

### Learn Rate Sources

If you are not in a position to check tariff rates in detail, you should become familiar with the ways in which this information can be developed for you. Such data becomes increasingly vital in cases where you are repeatedly encountering some particular items of traffic.

Many of you represent companies which do not maintain traffic managers or traffic departments. In such cases you can turn to carrier representatives for needed information. It will be up to you, of course, to learn which ones can be relied upon so that you will be dealing with experienced contacts who have the right

attitude about customer service.

One point to watch in effecting cost saving in your transportation is care in setting forth the descriptions in bills of lading. Many costly errors are possible in handling this detail.

For example, machinery parts which contain considerable brass call for different rates than do iron or steel articles. Guard against paying higher than necessary shipping costs through overvalued articles.

Machinery shipped NOIBN (not otherwise identified by name) is another point to watch in keeping transportation charges down. In such a situation, the clerk handling this very likely will do the natural thing—put down the highest rate applicable.

Avoid using those pet trade names most concerns think so highly of in your bills of lading. Commodities should be identified by correct descriptive terms, not by brands. Trade names have no place in **traffic.** 

You can save shipping costs by determining for yourself the correct tariff description to use. Do not expect the traffic manager of some supplier firm always to watch out for your best traffic interests in such cases.

Be careful to show correct rates on those bills of lading. Your notation to "protect lowest rates" in filing out such forms is useless.

Freight bills should be thoroughly audited. The wasted money and leaks which are represented by failure to check such billings would be astounding if the total could be brought to light!

Auditing prior to payment, of course, is the preferable policy. And let me add that just checking a freight bill against the last previous one for a similar shipment does not constitute an adequate audit.

Such bills can be referred to a reliable commercial traffic service if that appears necessary in obtaining reasonable adjustments. These agencies perform the work on a basis of a 50-50 share of any savings which they can effect for you, and they handle the work of filing claims, etc.

The selection of proper carriers is becoming an increasingly important factor to shippers as profit margins for most of us continue to narrow and competition becomes more intense.

(Please turn to page 236)



For More Information Circle No. 300
on Inquiry Card—Page 17->
PURCHASING

Extract from an address by W. C. Cole, Georgia Pacific Corporation, at a meeting of the Purchasing Agents Association of Oregon.



TUBE TURNS CAN HELP YOU!

No matter what kind of welded piping system you build . . . here's how Tube Turns can be of help:

Tube Turns' line includes 12,000 standard welding fittings and flanges, plus thousands of specials such as the A-power fittings shown above. When you buy from this complete-line leader, you get what you need promptly...products of unsurpassed quality...backed by experienced engineering service... for reliable, low-cost piping. Order from your nearby Tube Turns' Distributor.

The Leading Manufacturer of Welding Fittings and Flanges



LOUISVILLE 1, KENTUCKY

A Division of National Cylinder Gas Company

DISTRICT OFFICES: New York • Philadelphia • Pittsburgh • Chicaga • Detroit • Atlanta • New Orleans • Mouston • Midland

Dallas • Tulsa • Kansas City • Danvar • Los Angeles • San Francisco • Seattle

In Canada: Tube Turns el Canada, Ltd., Ridgetown, Onterio . Toronte, Onterio . Edmonton, Alberta



\*"TUBE-TURN" and \*tt\*
Reg. U. S. Pat. Off.

HOW YOU SAVE

# 12,000 "TUBE:TURN" PRODUCTS

to help you save 3 ways...

SIMPLIFIES ENGINEERING. There's no compromise when you specify TUBE-TURN products. You can count on getting the exact fittings for your project ... the right type, size, schedule and material for every piping service. Shown at right: Aluminum piping with TUBE-TURN Welding Fittings and Flanges, in water purification plant of The General Tire & Rubber Company, Chemical Division, Ashtabula, Ohio.



SPEEDS UP THE JOB. Uniform size, circularity, wall thickness of TUBE-TURN Welding Fittings assure good fit-up and alignment . . . help make piping installation work faster. Each fitting is marked with complete specifications for quick, accurate identification. Quartermarked bevels simplify fabrication.



224 East Broadway, Louisville 1, Kentucky

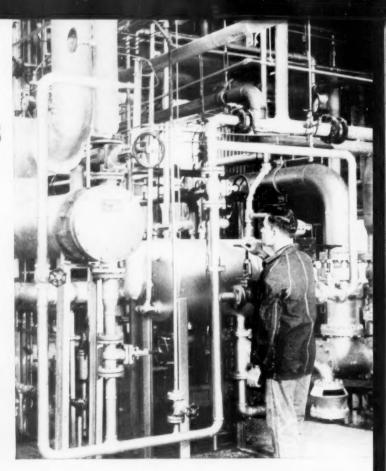
Please send free copy of Pipe, Fitting and Flange Materials,

Company Address

City Zone State

Your Name

Position





**ONE-ORDER PURCHASING.** Your nearby Tube Turns' Distributor provides this complete-line service promptly. Hence, you can make *one order* fill all your needs in welding fittings and flanges . . . to cut red tape and save purchasing time,

Available from your nearby TUBE TURNS' distributor



\*"TUBE-TURN" and "tt" Reg. U.S. Pat. Off.

# TUBE TURNS

LOUISVILLE 1, KENTUCKY

A DIVISION OF NATIONAL CYLINDER GAS COMPANY

DISTRICT OFFICES: New York \* Philadelphia \* Pittsburgh \* Chicago Detroit \* Atlanta \* New Orleans \* Houston \* Dallas \* Midland Tulsa \* Kansas City \* Denver \* Los Angeles \* San Francisco \* Seattle In Canada: Tube Turns of Canada Limited, Ridgetown, Ontario Toronto, Ontario \* Edmonton, Alberta

# TAYLOR

Laminated Plastics Vulcanized Fibre

# Shop Talk

TAYLOR FIBRE CO.

Plants in Norristown, Pa. and La Verne, Calif.

PHENOLIC-MELAMINE-SILICONE-EPOXY LAMINATES . COMBINATION LAMINATES . COPPER-CLAD LAMINATES . VULCANIZED FIBRE

# Tips for purchasing men



Back plate on an automobile headlight switch, punched and machined from Taylor Grade XP paper base laminate, has low moisture absorption and good dielectric strength.



Vise jaw caps, made of Taylor Grade C phenolic I aminate, are easily cut and machined to shape. Marring of precision or delicate parts is eliminated.



Self-balancing servo motor has stator case insulator which is cold-punched from ¼a" thick Taylor Paper Base Phenolic Laminate sheet.



Flippers for loose-leaf binders are made of economical Taylor Vulcanized Fibre . . . affording added rigidity and good protection for the paper pages.

# TAYLOR SUPERIOR COPPER-CLAD LAMINATES

Taylor GEC (glass epoxy) Copper-Clad and Taylor XXXP-242 cold punching (paperphenolic) Copper-Clad. Taylor uses high purity rolled copper on base materials with outstanding electrical properties.



Time switch, made by the Tork Clock Co., uses two Taylor products . . . the deadfront is made of vulcanized fibre for its insulating properties, shock protection and printability . . . the mounting panel of the clock is made of Taylor laminate XP-1-231, chosen for high strength and good punchability.

### **Have an Insulation Problem?**

### Taylor will provide the answer . . .

Select from Taylor's complete line of materials—laminates and vulcanized fibre—to get the right combination of electrical, physical and machining properties for your product. And, if you have a unique problem, Taylor will develop a special material to meet your requirements.

For example, rigid requirements for insulation materials in the Tork Clock Company's Time Switch were met by two Taylor materials—a laminate and vulcanized fibre. The mounting panel is made of Taylor laminate XP-1-231, especially formulated for the high strength and good punchability requirements of this application. In addition, Taylor vulcanized fibre serves as the dead-

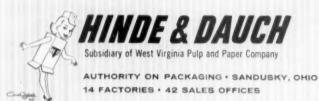
front—a shockproof cover removed only for installation and service. Fibre was chosen for its insulating properties, shock protection, and printability.

Taylor materials are developed to meet the need for dependable, moisture-resistant insulation. They have high dielectric and mechanical strength, and maintain original characteristics over long periods of time, under severe operating conditions. When you choose—and use —Taylor products, you'll have performance with stability.

Taylor application engineers can help you obtain the Taylor material that matches the exact requirements of your product. Contact your nearest Taylor sales office.



We realize Hinde (rhymes with find) and Dauch (pronounced 'dowk') are difficult names to pronounce. We also answer to "H&D." Call us next time you need corrugated boxes.



# association news

(Continued from page 232)

Truck lines and freight forwarders appear to be about at a stand-off in their competition for our business. The railroads may not have quite kept up with the parade in improvements of service, but they are certainly competitive, cost-wise.

### Use Reputable Companies

By all means, avoid trying to cut your transportation costs by using fly-by-night gyppo haulers. Usually, your experience with these fellows will be a sad one. Remember to look at the total cost and service picture before you by-pass established, reliable carriers in favor of a one-shot saving which seems tempting to you.

Consolidations of shipments involving westbound traffic offer some savings in the way of volume. If you get into such operations beware of Interstate Commerce Commission violations.

Our organization, as a rather large shipper, makes its most significant savings in the way of effecting rate adjustments. It is not true that all tariffs are I.C.C. established. Many of these rates actually are voluntarily set up, and of course are subject to adjustment.

If you feel that rates you are being charged are out of line with costs of shipping comparable products, do not hesitate to work these out with your carriers.

It has been my experience as a traffic consultant for a good many years that the carrier managements will prove reasonable to deal with if you go before them with a good case in which you can show that a requested rate adjustment will be mutually beneficial if allowed, but bad from their standpoint if not corrected.



Stanley Kramer, Producer-Director, and star Cary Grant tell why:

# "This shot will be heard around the world!"

"To shoot 'The Pride and the Passion' in Vista Vision and Technicolor — on location in Spain — was an enormous job. We lugged this 40-foot cannon over mountains — with the help of Frank Sinatra, Sophia Loren, and thousands of extras!

"It was tough work and a tough shooting schedule to meet United Artists' release date for the film!

Without Air Express, we couldn't make it.

"We count on Air Express to pick up the cans of film in New York, rush them to Hollywood for processing and cutting, fly them back for top executive screening.

"Then Air Express beats the release date by delivering hundreds of prints throughout the U. S. They speed up ground time with radio-controlled trucks — and even 'keep an eye on' all the shipments with their private teletype system!

"Surprising to me, with all this service, most of our shipments cost less than any other complete air service. 20 lbs., for instance, Hollywood, California, to Salt Lake City, Utah, is \$5.56. It's the lowest-priced complete service by \$1.94."





30 YEARS OF GETTING THERE FIRST via U.S. Scheduled Airlines

CALL AIR EXPRESS . . . division of RAILWAY EXPRESS AGENCY

For More Information Circle No. 303 on Inquiry Card-Page 17



## **RCA POWER TUBES**

FOR

# High-Efficiency Electronic Heating



For long-term power delivery in dielectricand induction-heating equipment, RCA offers industry an established group of electron power tubes for heavy-duty service. RCA tube design, associated with high-efficiency circuits, is your assurance of maximum power output—around the clock. Conservative ratings provide remarkably low tube cost per hour of equipment operation.

ment operation.

RCA Power Tubes are available in a wide choice of power ratings and frequency ranges. For prompt delivery on RCA power types, call your RCA Industrial Tube Distributor.

FREE TUBE GUIDE
24-page data booklet (PG-101-C) on
RCA power tubes,
rectiflers, thyratrons,
ignifrons, magnetrons, vacuum-gouge
tubes. Write RCA
Commercial Engineering, Sec. F36T
Harrison, N. J.





### TUBES FOR INDUSTRY

Radio Corporation of America Tube Division Harrison, N. J.

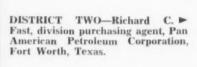
For More Information Circle No. 304 on Inquiry Card—Page 17

# association news

# N.A.P.A. Vice Presidents For 1957-1958



◀ DISTRICT ONE—Gordon Burt Affleck, purchasing agent, The Church of Jesus Christ of Latterday Saints, Salt Lake City, Utah.





**◄** DISTRICT THREE—Thomas G. Paterson Jr., assistant director of purchases, The Gates Rubber Company, Denver, Colorado.

DISTRICT FOUR Leonard Butters, purchasing agent, Union Steel Products Company, Albion, Michigan



DISTRICT FIVE—Robert Wier ► III, buyer, Hercules Powder Company, Wilmington, Delaware.



DISTRICT SEVEN—C. C. Sisk, ► purchasing agent, American Zinc Company of Tennessee, Mascot,

Tennessee.

◀ DISTRICT SIX—Lyle E. Treadway, purchasing agent, The Federal Glass Company, Columbus, Ohio.

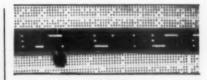


■ DISTRICT EIGHT — John F. Snedeker, purchasing agent, Binney & Smith Inc., New York, New York.



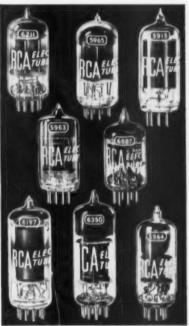
DISTRICT NINE—Thomas W. ► Seavor, purchasing agent, Speidel Corporation, Providence, Rhode Island.





# RCA COMPUTER TUBES

for Sustained Reliability



For high emission capabilities even after long periods of operation under cutoff conditions...for exceptional consistency of plate current during "On" time...for long, reliable service, specify RCA Computer Tubes, Quality performance is assured by: (1) rigid 100% microscopic inspection at every phase of tube manufacture, (2) factory tests under typical electronic computer operating conditions—including checks for cathode interface, interelectrode leakage, high-resistance, and intermittent shorts, and (3) tube life tests for conduction, standby operation, stability, and survival rate.

See your RCA Industrial Tube Distribufor the computer tube types you need. For prompt service, call him.

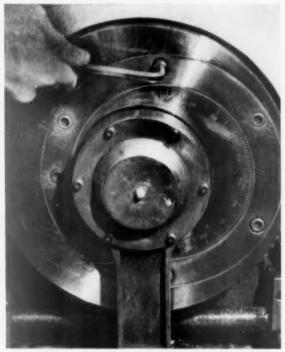
For free technical data on any of the following RCA Computer Tube types: 5915, 5963, 5964, 5965, 6197, 6211, 6350, 6887, write RCA Commercial Engineering, Section F-36-Z. Harrison, New Jersey.

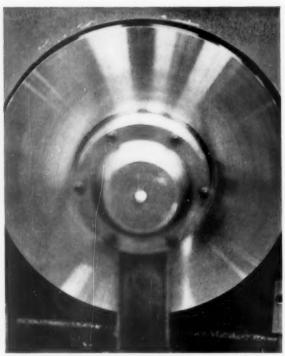




TUBES FOR INDUSTRY
Radio Corporation of America

For Mare Information Circle No. 305 on Inquiry Card—Page 17





Self-locking UNBRAKO socket screws keep critical adjustments secure in the eccentric drive mechanism of this fatigue testing machine. Drive system delivers varying loads up to 15,000 pounds force to equipment under test at 1050 cycles per minute.

# Vibration won't loosen Self-locking UNBRAKO socket cap screws

Screws with Nylok\* device permit adjustments, keep precise settings during long test runs



HOW IT LOCKS. The tough, resilient Nylok locking pellet keys itself into the mating threads. It forces threads together, and locks the screw securely-whether or not the screw is seated.

UNBRAKO socket screws with the Nylok self-locking device stay tight under constant vibration.

Take the eccentric drive system in the fatigue testing machine illustrated above, for example. This machine must frequently run for periods up to 2 weeks or longer, day and night, to complete a single test. Loosening of the screws which are used to adjust the tension-setting mechanism could not only cause damage to the machine, but also make the test data worthless. Self-locking UNBRAKO socket head cap screws eliminate such problems.

An UNBRAKO socket screw with the Nylok self-locking device is a single unit. Just screw it into any tapped hole. Seated or not, it locks positively wherever wrenching stops. Constant vibration or pounding, or endless running of a machine, won't affect these self-locking UNBRAKOS. The screws will not work loose!

Write today for your copy of Form 2193, which gives complete catalog and technical data on the entire line of UNBRAKO socket screws with the Nylok self-locking device. Or see your authorized industrial distributor. Unbrako Socket Screw Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.





\*I M. Reg. U.S. Pat. Off. The Nylok Corporation

# NOW GENERAL ELECTRIC TURNS WATER COOLER INTO "BUSINESS MACHINE"

and cuts cost of coffee breaks



Model JCH1

# New General Electric Hot and Cold Water Coolers

PIPING HOT WATER
Always on tap

Coffee, tea, chocolate, soups... other instant beverages ready in a jiffy—employees need not leave the working area.

ANOTHER EXTRA TOUCH. Roomy refrigerated compartment stores bottled beverages, fruits, lunches, milk, cream, other perishables. Two lever-action cube trays supply 48 ice cubes.

REFRESHING COOL WATER
Always on tap

The fully insulated sanitary cooling unit keeps an ample supply of refreshing drinking water available. ■ This on-the-job refreshment center has the same importance to management as modern business machines, because it saves coffee break time that's worth real money.

Actual records spotlight the economy and efficiency it brings to offices and plants, with savings in some instances running to thousands of dollars a year. It's a good will builder, too—employees like its convenience and appreciate getting their refreshment at lower cost.

There is a General Electric model to fit your particular needs, engineered for your satisfaction and backed by the famous General Electric 5-Year Protection Plan. Why not get full information about this business-like solution to the coffee break.

Also available, Pressure type Hot and Cold model (shown here). Standard Bottle and Pressure type models and new economy-size Junior Cooler.



Model RHS12

Call your local General Electric Water Cooler Dealer, General Electric Co., Commercial and Industrial Air Conditioning Department, 5 Lawrence Street, Bloomfield, New Jersey.

Progress Is Our Most Important Product

GENERAL ( ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

For More Information Circle No. 307 on Inquiry Card-Page 17

# association news



The Third District Council of the National Association of Purchasing Agents formally approved applications for membership in the newly formed Purchasing Agents Association of Central Illinois. Officers for the new group are pictured above: (back row, left to right) H. C. Chambers, D. L. Ramey, K. A. Waldron, V. R. Forgue, R. J. Ward, W. H. Reinhold, W. L. Johnson, directors; (front row) J. W. Long, director, J. M. Anderson, national director, H. D. Irving, vice president, A. Moffatt, president, F. C. Nelson, secretary, H. E. Modrow, treasurer, and D. W. Huegel.



Newly elected officers of the Fort Worth Purchasing Agents Association are shown above: (sitting, left to right) John D. Lively, first vice president; J. M. Appleman, president; Chas. R. Schuler, second vice president; S. J. Johnston, secretary-treasurer; (standing) L. L. Jones, alternate national director; Don Thompson, national director; S. O. Hughes, director and B. O. Lange, director. Not shown in picture are R. A. Kinlough and B. A. Grafe.

For More Information Circle No. 308 on Inquiry Card—Page 17→





**End view of new 3-wire duct.** Polarizing bar on side of duct meets all code requirements for polarization. The duct is Underwriters listed, single-phase, 3-wire, 120/240 V.



A BullDog field engineer will gladly point out the many advantages of Trol-E-Duct and other BullDog electrical equipment. You'll find his engineering know-how most helpful when you plan to expand or modernize electrical facilities.

### Big new development in lighting - 3-wire Universal Trol-E-Duct!

BullDog's new 3-wire Universal Trol-E-Duct<sup>®</sup> is literally packed with advantages for you. It offers twice the load capacity of 2-wire systems . . . yet costs no more to install. It provides a constant circuit for night lighting and/or a separate circuit for wall or column receptacles. It permits the flexibility of staggering lighting circuits. It is light weight, compact . . . requires less space than any other 3-wire system, too. Like 2-wire Universal Trol-E-Duct, it is completely flexible. It both feeds and supports lights anywhere along its length. Lets you connect or disconnect a lighting fixture with but a simple twist. No rewiring, no costly shutdowns, no extra expense when you rearrange your lighting systems.

Get the full story. See your electrical contractor or call in a BullDog field engineer now.

BullDag Electric Products Company, Detroit 32, Michigan 

A Division of I-T-E Circuit Breaker Company 

Export Division: 13 East 40th St., New York 16, N.Y. In Canada: BullDag Electric Products Co. (Canada), Limited, 80 Clayson Rd., Toronto 15, Ontario.



IF IT'S NEW ... IF IT'S DIFFERENT ... IF IT'S BETTER ... IT'S

**BULLDOG** 

ELECTRIC PRODUCTS COMPANY

A DIVISION OF 1-T-E CIRCUIT BREAKER COMPANY



SCREWSTICK saves money.

It can cut assembly costs by as much as 4 to 1

It can do this because SCREWSTICK feeds fasteners automatically from a power driver in a one-piece stick of identical fasteners. It eliminates manual handling of small screws, stops costly fumbling and combines high fastening strength with quick assembly.

Just as important is the ease of alignment between the screw and threaded hole and a constant, measured torque which is built into the product that provides uniform tightening.

The biggest news in fasteners comes from . .

SCREWSTICK is readily adaptable to compact, lightweight, portable drivers. Sizes from No. 0 to No. 6 in diameter, custom-engineered in machine screw or self-tapping types to meet your own requirements. They are mass-produced in the convenient, easy-to-handle SCREWSTICK form.

Find out for yourself how you can apply precision and ease of assembly to reduce assembly costs. Take advantage of American's custom engineering service for your fastening applications.



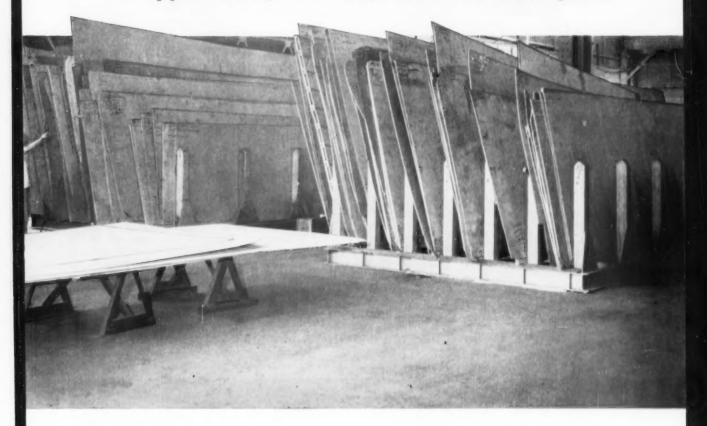
AMERICAN SCREW CO., WILLIMANTIC, CONN. NORRISTOWN, PA . CHICAGO, ILL . DETROIT, MICH.

For More Information Circle No. 310 on Inquiry Card—Page 17→
PURCHASING



# **Available now from Carlson**

... any size and shape you want in Types 405, 410 and 430 stainless plate



Carlson's stock of Types 405, 410 and 430 chromium stainless plate is the largest ever. You can order plates, large or small, and get delivery in a few days. Types 405 and 410 find wide application in petroleum processing. Type 430 is generally used for furnace parts, annealing boxes and nitric acid storage tanks. Consider the 400 series if you need stainless plates right now.

Prompt delivery isn't your only advantage. These grades

cost less than chromium-nickel stainless steels and if you need irregular shapes and sizes, experienced men with specially designed equipment can cut your plates and get them out in a hurry. Carlson provides a complete service with a flexible operation to take care of your specific requirements. This combination of stock, specialization and service saves you time and money, gives you what you want when you want it!

G.O. CARLSON Inc.

Stainless Steels Exclusively

THORNDALE - PENNSYLVANIA

District Sales Offices in Principal Cities

PLATES . PLATE PRODUCTS . FORGINGS . BARS . SHEETS (No. 1 Finish)

They're tough, they're versatile



# ACE

STUB DRILLS

The short, heavy duty flutes of Ace Stub Drills are ground into top quality pre-hardened high speed steel to give you keener cutting lips, extra strength, longer drill life. Ideal for close-lo-work screw machine operations and portable drilling. And they're now stocked in 140 standard sizes that cost approximately 20% less than equivalent jobber length drills!

Call your local Ace Drill Distributor today!





For More Information Circle No. 312 on Inquiry Card—Page 17

# association news

### Chicago Products Show

The Twenty-third Annual Products Show, sponsored by the Purchasing Agents Association of Chicago increased in prestige, attendance and success with their recent display.

There were 193 booths displaying various commodities such as chemicals, office equipment, heavy machinery and steels.

Over 500 members and guests attended the Products Show Banquet held in the Terrace Casino of the Morrison Hotel. Roy A. Peterson, president of the Chicago Association, congratulated the Products Show Committee on an excellent job done this year.

F. John Ferdinandsen, general chairman of the show presented a plaque to E. F. Brissie, Doehler-Jarvis Division of National Lead Company for the "Most Informative" booth, and a plaque to Joseph P. Francis, assistant sales manager of General Bearings Company for the "Most Attractive" booth.

Following the presentation of the plaques, Mr. Frehner gave a short talk on the history of the

Chicago Association's Products Shows, saying that for the first show, members and advertisers displayed their commodities one night, November 9, 1931, on tables set around in one room. The show has grown from a few hundred to over 21,000 visitors to the show this year.

Dr. Ralph W. Sockman, speak-



Roy A. Peterson, president, Chicago Association.

er of the evening chose, "America's Role in the World of Tomorrow," as his subject.

Credit for the success of the 1957 show goes to Mr. Ferdinandsen, and his co-chairmen, B. G. Erikson of Signode Steel Strapping Company, Roy F. Sielisch of Radio Industries, Inc., and Ragnhild Sterner, Constance Burra, E. G. Cox, Walter Auburn from the association office.



As the visitor came from the elevator, he saw the information booth of the Purchasing Agents Association which was staffed by members.



# **Buy WOLVERINE...**

How do you tell the best?

Well, we can't answer for other products but where tubing is concerned we know you can't do better than specify the products of Wolverine Tube. Here's why.

Wolverine products are Tubemanship built—reflect Wolverine's years of experience, rigid quality control, constant research, sound engineering and the pride its skilled employees take in work well done. The result is tubing of the highest quality and when you buy quality you automatically buy the best.

In addition to top quality, Wolverine Tubemanship also assures you of tubing designed to meet your needs. In heat transfer applications, for example, you can specify condenser tubing in two distinct forms. For heat exchange operations demanding top BTU output Wolverine manufactures Wolverine Trufin<sup>®</sup>—the integrally finned condenser tube. Also available is prime surface condenser tubing in a wide range of sizes and alloys. Wolverine is also widely known for its top quality commercial tube which is available in types for a wide variety of industrial applications.

The next time you require copper tubing specify Wolverine—and be sure of the best. For the complete story of Wolverine's extensive product line write for your copy of the General Products Catalog. Do it today!

### CALUMET & HECLA. INC.

CALUMET DIVISION
WOLVERINE TUBE DIVISION
FOREST INDUSTRIES DIVISION
GOODMAN LUMBER COMPANY
CALUMET & HECLA
OF CANADA LIMITED
CANADA VULCANIZER AND
EQUIPMENT COMPANY LIMITED



### WOLVERINE TUBE

Division of Calumet & Hecla, Inc.

1427 CENTRAL AVE., DETROIT 9, MICH.

Manufacturers of Quality Controlled Tubon; and Extruded Aluminum Shapes

Wolverine Trufin is available in Canada through the Unifin Tube Company, Landon, Ontario

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES

EXPORT DEPARTMENT, 1) EAST 46TH STREET, NEW YORK 16, NEW YORK

For More Information Circle No. 313 on Inquiry Card-Page 17

# Only New HALLOWELL ERECTOMATIC. Steel Shelving



LESS TIME, MORE UNITS PER HOUR, lower costs with Hallowell ERECTOMATIC steel shelving. Maximum adaptability to meet changing conditions, too,

No matter what type of shelving you need—open, closed, bin units, ledge units, counter or cabinets—there's new Hallowell Erectomatic\* steel shelving to make your job easy. The unique built-in locking device\* speeds assembly and rearrangement of shelving. To position a shelf—just slide it into place on the shelf supports, press the locks, and the shelf is locked. To reposition a shelf—release the locks, pull the shelf straight out, slide it straight in on its supports at the new location, and press the locks. It takes only seconds to do the complete job.

For complete information, see your Hallowell distributor. Or write Hallowell Shop Equipment Division, STANDARD PRESSED STEEL Co., Jenkintown 31, Pa.

\*Patent applied for

TWO MEN ASSEMBLED new Hallowell ERECTOMATIC steel shelving in just over 10 minutes. Closed unit was 36 in. wide, 18 in. deep, 7 ft. 3 in. high, complete with seven shelves. Standard models of other design required from 13-55 min. Table shows test results.

Brand	Time to Assemble (Min.)	Units Per Hour
Erectomatic	10.24	5.75
A	13.23	4.53
В	14.24	4.21
C	16,30	3.68
D	18.12	3.31
E	25.03	2.40
F.	55.03	1.09







FAST ASSEMBLY. Just position the shelf supports, insert the shelf, and press the unique locking device. No tools or special instructions necessary.

# gives you all these extra-value features



QUICK SHELF CHANGE. Just release the locks, remove the shelf and its supports, relocate the shelf, and press the locks. It takes only seconds.



STRAIGHT-IN, STRAIGHT-OUT SHELF CHANGE. No tilting to interfere with any other shelf. No time wasted unloading shelves or removing bin fronts, partial dividers, label holders.



INDEPENDENT SHELF POSITIONING. Each shelf is an independent unit. Can be removed and repositioned without disturbing any other part. All shelves in a rack can be aligned.



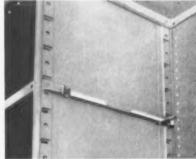
FULL USE OF SHELF AREA. No angles or tees, and beaded corner posts prevent waste of valuable storage space. No box guides are needed.



COMMON SIDE PANELS AND POSTS save assembly time. Also save material between adjacent units in a rack. And both back and side panels are one-piece.



BEADED POSTS AND FLANGED SHELVES prevent snagging of clothing or stored goods. Also prevent injuries from sharp, ragged edges.



FULL DEPTH SHELF SUPPORT. Load is distributed over full depth of shelf. No buckling is possible. Reinforcements can be added when they are required.



4 CLASSES OF SHELVES. Regular, medium, heavy, and extra-heavy shelf construction meets all load requirements. Made to government specifications. Extra-heavy shelf shown.

STANDARD PRESSED STEEL CO.

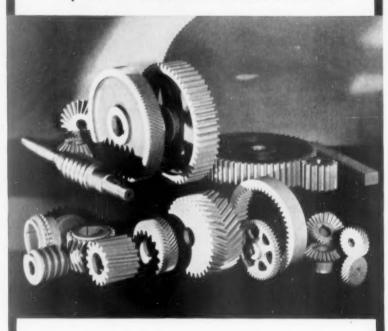
HALLOWELL SHOP EQUIPMENT DIVISION

For More Information Circle No. 314 on Inquiry Card-Page 17

#### One of these 9

## H&S Gears

is sure to answer your power transmission needs!



Racks
Bevel
Mitre
Internal
Worm
Helical

Herringbone

Regardless of type, every H & S Gear is of the rugged, "husky" type. Heavy rims are well reinforced. Hubs are heavy in section, eliminating the need for key patches. All sharp corners are broken and generous fillets are provided.

H & S Gears are available of Steel, Hardened Steel, Alloys, Cast Iron, Bronze, Rawhide, Fibroil, or Bakelite.

Exacting care is exercised in every manufacturing step of H & S Gears. This insures quietness of operation, uniform velocity ratio, and freedom from vibration.

Whether you need a gear that weighs one ounce or 10 tons, why not put our years of gear engineering experience to work for you. Just send us the specifications or call. There's no obligation.

#### THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

5112 Hamilton Avenue Cleveland 14, Ohio

Send note on Company Letterhead for complete H & S Catalog
For More Information Circle No. 315 on Inquiry Card—Page 17

# association news

#### Eastern N.Y. Meeting Scores Big Success

The Purchasing Agents Assn. of Eastern New York held its twenty-third annual executive night meeting in Albany, March 21. Always known for its sociability, the meeting attracted more than 200 members and guests.

Featured speaker of the evening was Dr. Theodore G. Klumpp, president, Winthrop Laboratories, Rensselaer, N. Y. He gave an outstandingly fine talk on, "A New Look at the Old Ticker," which had more than a few of those present furtively checking their heartbeats and doing their best to hold in bulging waistlines.

Under the direction of Clyde Womer, Sterling-Winthrop Research Institute, and president of the Eastern New York association, the program went off exceptionally smoothly. Heading up the program committee was Austin A. Woodward, Woodward Co., Albany, N. Y.

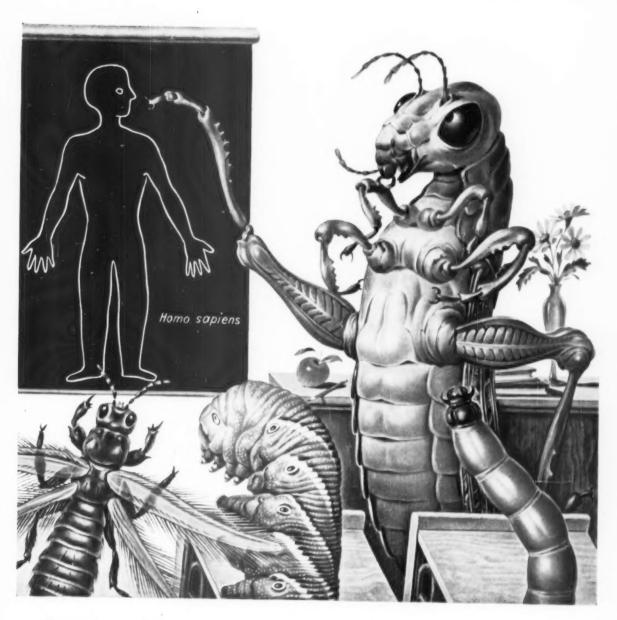
Among the guests present were Eighth District council members from the New York, New Jersey, Elmira, Buffalo, Canada, Rochester and Syracuse associations.



Chatting during the cocktail party preceding the Eastern New York Purchasing Agents Assn. meeting were: Clyde Womer, Sterling-Winthrop Research Institute and president of the association; Clarence Buss, Bausch & Lomb Optical Co., and (mostly hidden) F. G. Samis, Northern Electric Co.

For More Information Circle No. 316 on Inquiry Card—Page 17→

PURCHASING



# Public Enemy No.1

Insects with an urge to reach old age will do well to keep a sharp eye on an enemy commonly known as MAN, or *Homo sapiens*. They should also learn to recognize the name Shell Chemical.

As a long-time supplier of weapons against harmful insects, Shell Chemical produces aldrin, dieldrin, and endrin. These three insecticides control pests both above and below ground—whether they're moving, feeding, or resting. Shell Chemical insecticides are effective in low dosages, too. Grasshoppers, mosquitoes, hornworms, wireworms, and many others die quickly when they touch, taste, or breathe them.

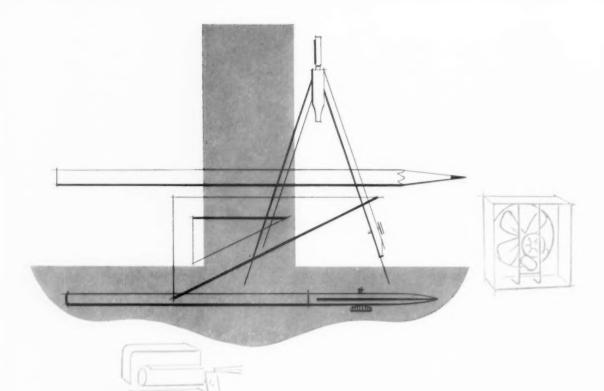
By developing new and better pesticides, Shell Chemical helps farmers get more production from every working hour and every acre.

# Shell Chemical Corporation

Chemical Partner of Industry and Agriculture

NEW YORK





# SKF ENGINEERS OFFER DESIGN ASSISTANCE

To Solve Your Appliance-Bearing Problems



To be certain that in your design considerations of appliances the best bearing for the job is "drawn into" the plans, consult an **SKF** engineer. He is always available to guide you in making the selection of anti-friction equipment that will assure long and quiet appliance life. His wide experience and **SKF**'s broad line of low-noise-level bearings is the combination that supplies the right bearing for every application.





## Ball Bearings

Cylindrical Roller Bearings
Spherical Roller Bearings
Tapered Roller Bearings

.....

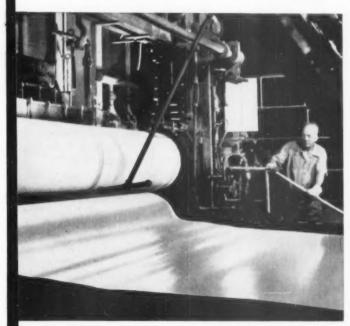
BKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

For More Information Circle No. 317 on Inquiry Card-Page 17

For More Information Circle No. 318 on Inquiry Card-Page 17-

# NOTHING can equal Stainless Steel

in its unique combination of properties



For Heat Resistance

Pittsburgh Plate Glass Company wanted to increase the output of their glass tanks, so they needed better rolls to withstand the heat from the 2000° F. glass. They chose USS Stainless Steel Forgings for this critical location because Stainless resists cracking and oxidation, and retains its dimensions, even though in 24-hour-a-day service.

#### For Corrosion Resistance

Calera Mining Co. operates the world's largest cobalt refinery, and the process involves leaching with a sulfuric acid solution. The Stainless Steel agitators shown here hold up at temperatures as high as 200° F., despite the high acid concentrations.

No other design material can match Stainless Steel in its combination of desirable properties: corrosion resistance, strength, hardness, beauty, cleanability and easy fabrication. If you're looking for a reliable source of supply, remember that United States Steel offers you the widest range of types, finishes and sizes.

UNITED STATES STEEL COMPONATION PITTSDUNGS - AMERICAN STEEL & WINE DIVISION, CLEVELAN COLUMNIA GENEYA STEEL OUTSION, SA FRANCISCO - BATIONAL TIME DIVISION, PITTSBUNGS TENNESSEE COAL & HOND DIVISION, PAINTELLO, ALL UNITED STATES STEEL SUPPLY DIVISION AMERICANS DISTRIBUTIONS

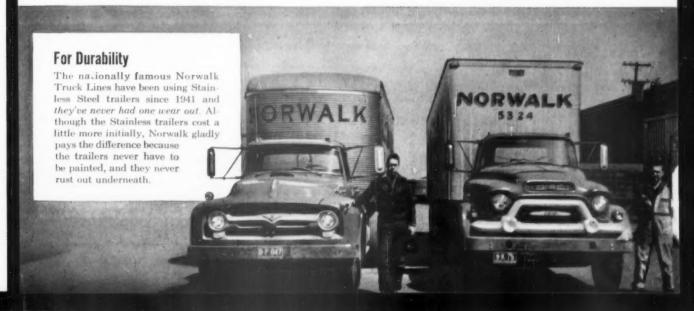
# USS STAINLESS STEEL

SHEETS - STRIP - PLATES - BARS - BILLETS PIPE - TUBES - WIRE - SPECIAL SECTIONS



UNITED STATES STEE!







Accurate makes springs by the millions—many of our customers use a million a month. That takes a lot of spring know-how, experience and skill. But to produce precision springs in large quantities at nominal cost takes more than that. It takes imagination.

Imagination allows Accurate to approach problems without being too influenced by conventional methods. To successfully produce large quantities of precision springs Accurate customer service begins in the design and engineering stage. Highly developed skill in producing special tooling for large quantities often helps lower overall cost. Springs held to close tolerances are assured by rigid quality control and inspection. Packaging is designed to provide ease of handling and speed the customers' production. Scheduling and planning departments assure quantities delivered to meet your needs and reduce inventory requirements.

That is the type of experience, skill . . . and imagination, that allows Accurate to produce springs by the millions. Plan your springs with Accurate too.

#### ACCURATE SPRING MANUFACTURING COMPANY

3825 W. Lake St., Chicago 24, Illinois





#### Sixth District Meets In Canton

Sixteen delegates and close to a hundred members, and many wives, traveled to Canton, Ohio for the annual Sixth District Council meeting.

Highlight of the event was the election of Lyle E. Treadway, Federal Glass Company, Columbus, Ohio as new Sixth District vice president.

The program consisted of a cocktail hour for the early evening, followed by dinner, Speaker for the evening was Rev. Lawrence W. Hall, rector of St. Paul's Episcopal Church, East Cleveland, Ohio.

In his address, "Humor is America's Secret Weapon," Rev. Hall pointed out that people of any country can progress as long as they can laugh at their own mistakes. A sense of humor is an essential asset of every individual.

At the Saturday morning session many discussions got under way after the national directors gave their reports and the current Sixth District vice president, T. O. English, Alcoa, Pittsburgh, gave his report, and commented on N.A.P.A. activities.

C. Warner McVicar, chairman of the development committee, Ted Thompson, education committee chairman, and Larry Rice, standardization chairman, gave reports on their respective subjects.

The Fall Council meeting was set for Dayton, Ohio, for October 25 and 26, 1957 with the Spring council meeting scheduled for Cincinnati, Ohio on March 15.

FOR MORE INFORMATION
PLEASE USE
INQUIRY CARD—PAGE 17

# 2nd. Sign

ELIZABETH NEW JERSEY

# .in our distribution..planned for you

Purchasing people today insist on, and are entitled to, delivery as promised!

We have taken the second in a continuing series of steps to insure performance.

We have established another new Distribution Center to give you on-time delivery, better stocking of products, and good service.

Our first Center was opened in Burlingame, California last year. The second Center is located in Elizabeth, N. J. Additional facilities of this type will be opened in the future.

These Centers are designed and planned so that assembly, modification and distribution can be made quickly and efficiently.

Fast delivery will be made against your purchase orders through our conveniently located sales offices.

We are ready NOW to meet all your Motor and Drive requirements for every industrial application.

Write for Bulletin A-1555-B "Widening the Horizons of Automation."



#### RELIANCE HANGELINA CO.

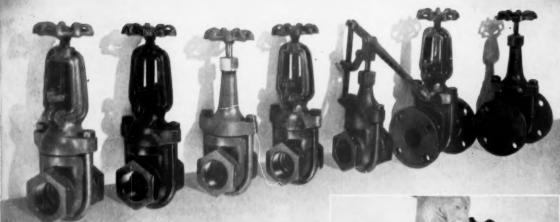
BEPT. 256A, CLEVELAMD 17, OHIO Canadian Bivision: Welland, Ontario Sales Offices and Distributors in Principal Cities





# Eleven lines of WALWORTH Saddle Type Wedge Gate Valves

Bronze-Mounted - All-Iron - Ni-Resist Outside Screw and Yoke - Non-Rising Stem - Quick Opening Flanged Ends - Screwed Ends



Walworth saddle-type wedge gate valves are manufactured in eleven different combinations of designs and materials, seven of which are illustrated above.

Saddle type wedge gate valves are easy to take apart and are particularly suitable for lines requiring frequent cleaning. Walworth Saddle-Type Wedge Gate Valves are available in a variety of designs including OS & Y; Inside Screw Rising Stem, and Sliding Stem Quick Opening types-in Bronze-Mounted, All-Iron, and Ni-Resist. All types are designed to permit repacking under pressure in either the open or closed position.



FOR COMPLETE INFORMATION, See your local Walworth Distributor or write on business stationery for illustrated circular.



60 East 42nd Street, New York 17, New York









SUBSIDIARIES: (IN) ALLOY STEEL PRODUCTS CO. CONOFLOW CORPORATION (STEEL PRODUCTS CO.







SW SOUTHWEST FABRICATING & WELDING CO., INC. (H) M & H VALVE & FITTINGS CO. ( WALWORTH COMPANY OF CANADA, LTD.

For More Information Circle No. 321 on Inquiry Card-Page 17 256

For More Information Circle No. 322 on Inquiry Card-Page 17-PURCHASING



40% stronger than standard belts!

Where more driving power is called for, switch to Powerflex Hi-Capacity V-Belts. These new premium belts can step up the drive capacity of "under-belted" drives by as much as 40%.

If your present belts are being stretched beyond their take-up allowance . . . or if you're going to replace worn or damaged pulleys . . . change to Powerflex Hi-Capacity V-Belts. They permit you to use fewer belts and narrower sheaves . . . reduce drive costs.

Powerflex Hi-Capacity V-Belts are available in all standard sizes, and feature a special oil-resistant cover which prolongs belt life. Static conducting covers can be supplied. Order from your Thermoid Distributor, or write direct for complete information.



THERMOID COMPANY . Trenton, N. J.



There's a Thermoid Conveyor Belt



and Thermoid Hose for every job.



# association news

#### Twin Cities Ass'n Sponsors Seminar

A purchasing seminar was recently conducted by the University of Minnesota in conjunction with the Twin City Association of Purchasing Agents.

The two-day session, which was attended by more than 100 purchasing executives from the St. Paul, Minneapolis area, was opened by Richard Kozelka, dean of the College of Business Administration.

Howard S. Piquet, senior analyst and foreign economics expert of the Library of Congress followed to complete the morning session, expertly tying together American economics, the interplay and inter-dependence of foreign economic relations.

Henry Archambo, president of the Minneapolis Traffic Association used the entire afternoon session of the first day to make purchasing agents more traffic conscious than ever before. He was assisted by a panel consisting of E. S. Ulgatt, Northern Pacific Railroad: A. C. Doengus, Minneapolis. Northfield and Southern Railroad; Sam Shapiro, Hennepin Transportation Company and E. L. Murphy Jr., Murphy Motor Freight Lines, Inc.

The full session of the second morning was devoted to the subject of public relations by Nels Gibbons, procurement engineer, Motor Wheel Corporation, Lansing, Michigan.

In the afternoon session the subject was demonstrations of brain storming, the relatively new but rapidly expanding technique for the gathering and developing of ideas. This session was headed by Joseph P. Mason Jr., of the advertising agency, Batten, Barton, Durstine & Osborne, Inc.

The seminar was concluded with the regular dinner meeting (Please turn to page 262)



# Fragile, bulky or bizarre . . . Gair has a shipping box for the job

We don't have a moosehead box . . . but we could tailor one for you. Whether you need expert help for packing hard to ship merchandise or extra fast delivery of a standard shipper, prompt service is a specialty with Gair. Write Gair for help if you need a box that will pack easily, protect completely and probably cut your present shipping costs, too.

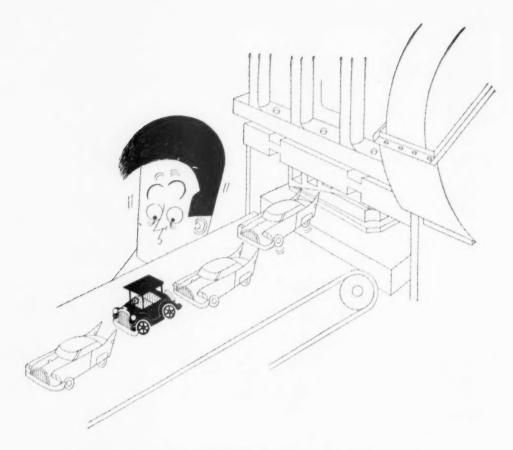




creative engineering in packaging

FIBRE DRUM & CORRUGATED BOX DIVISION OF CONTINENTAL C CAN COMPANY 155 EAST 44TH ST., NEW YORK 17, N. Y.





#### Got a forming problem?

SOLVE IT WITH CRUCIBLE KETOS. IT'S A NON-DEFORMING, OIL HARDENING TOOL STEEL, WHICH USERS FIND UNBEATABLE. YOU CAN GET IT QUICKLY FROM LOCAL CRUCIBLE WARE-HOUSE STOCKS.

Crucible KETOS is especially suitable for blanking and forming dies. It has a wide heat treating range-low hardening temperature-minimum decarburization-and is non-deforming.

KETOS is one of dozens of special tool steels regularly stocked at Crucible warehouses. Deliveries are prompt in the sizes you want.

And Crucible offers you more than steel. You have the service of an industryexperienced staff of specialists to assist in the selection and fabrication of special steels. That's because Crucible is the only specialty steel producer fully integrated to the point of use. That means control and responsibility from raw material to warehouse delivery to you.

STOCKS MAINTAINED OF:

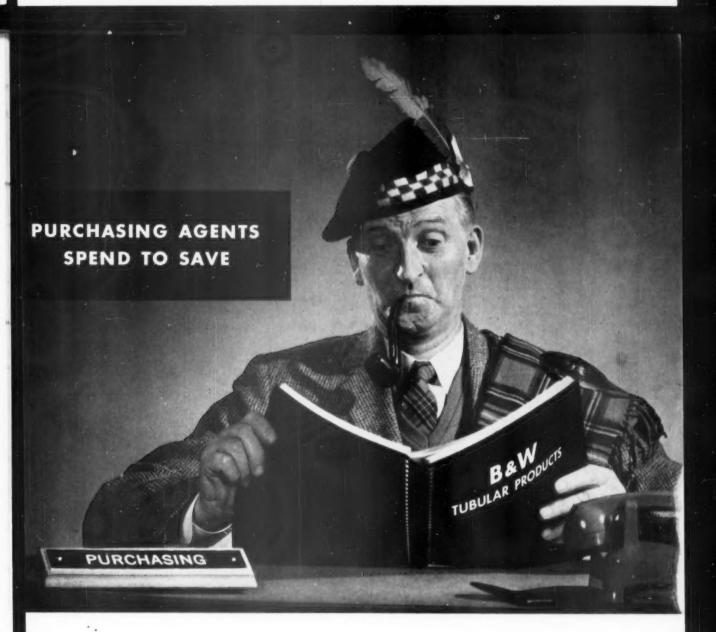
Rex High Speed Steel . . . ALL grades of Tool Steel (including Die Casting Die and Plastic Mold Steel, Drill Rod, Tool Bits, and Hollow Tool Steel Bars) ... Stainless Steel (Sheets, Bars, Wire, Billets, Electrodes) ... Max-el, Hy-Tuf, AISI Alloy ... Onyx Spring, Hollow Drill Steel and other special purpose steels.

# CRUCIBLE WAREHOUSE SERVICE

## Crucible Steel Company of America

General Sales Offices, The Oliver Building, Mellon Square, Pittsburgh 22, Pa. Branch Offices and Warehouses: Atlanta • Baltimore Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Dallas • Dayton • Denver • Detroit • Grand Rapids Harrison • Houston • Indianapolis • Los Angeles • Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Portland, Ore. Providence • Rockford • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Toronto, Ont.

For More Information Circle No. 325 on Inquiry Card-Page 17 For More Information Circle No. 326 on Inquiry Card-Page 17-PURCHASING



#### "Spending a mickle wisely can make a good muckle."

The canniest Purchasing Agents are the men who keep the sharpest eye on the consistent quality of all materials offered. No accounting machines can supplant their mature judgment in the market place. They must know the suppliers who can be relied upon for rigid adherence to specifications, dollar for dollar value, and on-time deliveries.

Experienced Purchasing Agents do not risk losing customers by sacrificing quality to expediency. The wisest spenders know that all grades of B&W Tubing save their company money—tubing quality controlled to specific requirements.

When it comes to which B&W Tubing is best for the job—carbon, alloy or stainless steel; the best methods for fabrication of mechanical or pressureresisting parts—before ever an order is signed, Purchasing Agents know that Mr. Tubes, B&W's nearby representative, is ready with the latest money-saving information.

The Babcock & Wilcox Company, Tubular Products Division, Beaver Falls, Pa.



Seamless and welded tubular products, seamless welding fittings and forged steel flanges—in carbon, alloy and stainless steels

# At Forest City your order for gray iron castings receives personal attention



The moment your order is entered by the sales department it is regarded as a challenge.

Can the pattern be improved? Do laboratory tests assure proper grades of raw materials and finished product? On which core-making and molding lines can the order be handled to the greatest advantage?

All such questions receive the careful consideration of the heads of the various departments. From start to finish your order is processed to give you not only the finest in gray iron castings, but also the utmost in service.

Let us show you how we can give your order for gray iron castings our personal attention. At your convenience, our representative will be glad to discuss your particular requirements and our ability to meet them.

The Forest City Foundries Company

For More Information Circle No. 327 on Inquiry Card-Page 17



(Continued from page 258)

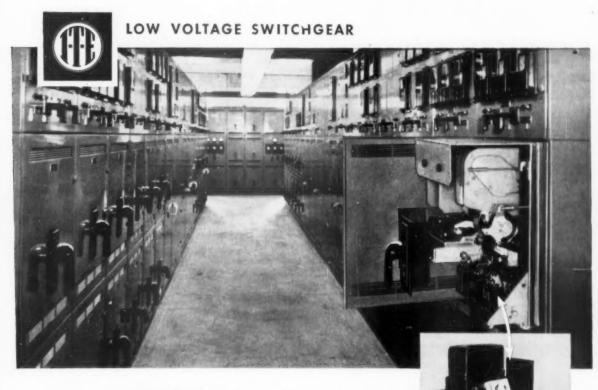
of the Twin City Association of Purchasing Agents with a near record membership attendance and featured Dr. C. Gilbert Wrenn, professor of education, University of Minnesota, and a widely known consulting psychologist. Mr. Wrenn's subject was, "Human Relations."

#### North Jersey Increases Membership

Nine purchasing executives were approved and qualified for membership in the Purchasing Agents Association of North Jersey at the recent meeting. They were: Nicholas W. Badalaty, Interchemical Corporation, Print Ink Division, Elizabeth; George W. Lukacs, Walter Kidde & Company, Inc., Belleville; Leo C. Reddan, Walter Kidde & Company, Inc., Belleville; and Ernest W. Linderman, Tenco, Inc., Linden; Martin Plessinger, Peter A. Frasse & Company, Inc., New York; Arthur W. Seward, Standard Corrugated Case Corporation, Ridgefield; Arnold A. Staub, Hackensack Water Company, Hackensack; Bruce S. Thompson, Peter Schweitzer, Inc., Spotswood; and John J. Zdanoff, Jarett Compressor & Equipment, Inc., Newark.

Rube Atkins, of the Standardization Committee, introduced the evening's speakers on Standardization in the Steel Industry. A film, "The Men Who Make Steel" was shown, followed by a talk by Hal Hansen of Republic Steel, who spoke on the steel mill side concerning standardization.

Roscoe Moore of the Peter A. Frasse organization, speaking for the warehouses, stated that the large number of items involved made color standardization rather difficult.



# Here's SENSITIVE Circuit Protection

Some temporary overcurrents are tolerable; should even be permitted to occur. But sensitive circuit protection is needed to interrupt them when they persist too long or are of too high a magnitude.

The I-T-E Type OD-I dual magnetic overcurrent trip device gives such protection. It permits temporary overcurrents, but limits them in duration and magnitude. This device will trip the circuit breaker after a predetermined interval on relatively low overcurrents or will trip instantaneously on high-magnitude fault currents. In either case you get safe, positive protection—sensitive to the needs of the circuit and the equipment on it.

For complete information on sensitive circuit protection, including selective tripping, undervoltage and other tripping devices, contact your local 1-T-E sales representative. Or write for Bulletin 6004B, I-T-E Circuit Breaker Company, 19th & Hamilton Sts., Philadelphia 30, Pa.

#### Features of the I-T-E Type OD-1 Trip Device

**PRECISION BUILT** and factory calibrated to provide the highest possible accuracy in operation.

SEALED SILICONE TIMING ELEMENT. No maintenance. No oil to handle, no level to maintain, no sludging.

QUIET. Resonant vibration dampeners prevent a-c noise and wear on parts.

**COMPLETELY ADJUSTABLE IN SERVICE.** The delay pickup is easily adjusted from 80 to 160% of the continuous current rating. The instantaneous pickup

is adjustable from 500 to 1500% of the continuous current rating. The time delay is adjustable to any of three time delay bands—minimum, intermediate and maximum.

**SAFE DEAD FRONT DESIGN.** Insulated knobs permit safe adjustment on a *hot* circuit breaker.

**DEPENDABLE** impact tripping action. The *hammer* blow movement of the time delay armature at end of timing stroke gives positive operation.

**FAST RESETTING.** Sensitive check valve on the piston provides quick resetting of the time delay. Repeat tripping is assured.

#### I-T-E CIRCUIT BREAKER COMPANY · Switchgear Division

IN CANADA: EASTERN POWER DEVICES, LTD.



#### Taft-Peirce gives three ways to...

#### PUT EXTRA "LIFE-VALUE" IN YOUR GAGING FOR LOWER COSTS, HIGHER STANDARDS



gage has an even film of hard, tough nonmagnetic alloy - only .000025" thick - on all gaging surfaces, providing an exceptional wear resistance.

Get Taft-Peirce extra "Life-Value" on your next order. If you want to reduce gaging costs - and promote higher standards at the same time - Taft-Peirce will be glad to use its experience to recommend special surface or material selection. This T-P extra "life-value" will more than pay for itself . . . in better parts inspection and smarter gage buying. For complete listing and prices of Taft-Peirce Fixed Gages, ask for The T-P Handbook.

suited for accurate inspection of highly abrasive materials or large quantities of parts.

E. Adjustable Snap Gages can be furnished with gaging members faced with tungsten carbide, tantalum carbide or Norbide for extra wear resistance.



#### TAKE IT TO TAFT-PEIF

THE TAFT-PEIRCE MANUFACTURING COMPANY WOONSOCKET, R. I.



time-tested

Unsurpassed in design, construction, and

performance.

and still preferred

# OXWELD

Trade-Mark

# W-17 blowpipe

For over 25 years the OXWELD W-17 has built its own reputation for dependability. Year in, year out—around the clock on the toughest jobs—the W-17 just won't quit.

That's one reason why the OXWELD W-17 is *still* preferred by those who know welding apparatus. And that's why more W-17's are serving American industry today than any other welding blowpipe.

Call your nearby Linde representative for a demonstration—or write for free booklet F-1007.

... do it today!

#### LINDE COMPANY

DIVISION OF

UNION CARBIDE

CORPORATION

30 East 42nd Street, New York 17, N. Y.

In Canada: LINDE COMPANY, Division of Union Carbide Canada Limited, Toronto

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-For More Information Circle No. 329 on Inquiry Card—Page 17 For More Information Circle No. 330 on Inquiry Card—Page 17 265

# How Purchasing Policies Can Cut Fastening Costs

Objective Analyses of Standard Rivets and Their Sources Guide Design and Production Toward Cost Reductions

> By SIDNEY C. PARKER, Sales Manager Judson L. Thomson Manufacturing Company, Inc.

Has this ever happened to you? You get an order to purchase a fastener to frozen specifications. You contact sources only to find out that a costly "special" is called for. You also learn that a slight change in specifications would permit use of a low-cost standard fastener. But it's too late for you to take corrective measures.

RESULT: Wasted time and money!

This occurs too often, according to our sales and engineering departments. They know of cases where either premium-priced fasteners or special screw-machine parts were specified when low-cost rivets could have done the job. Even with rivets, specials are often called for when standard rivets could have been used, if designs had not been frozen.

As a key member of the value analysis or cost-reduction team in your firm, you have the right and duty to stop such unprofitable practices. May I suggest several policies that will put your firm dollars ahead?

Make it a rule to give rivets early consideration whenever fastening is involved. Then, see to it that your design and production engineers are rivet conscious, too. These policies pay off two ways. Rivets, as cold-formed fasteners, cost dollars per thousand less than screw-machine parts or other special fasteners! Rivets, as machine-set fasteners, climinate costly hand assembly and speed up production!

Another wise policy is to consider Thomson Rivets first. That's because more than 8000 standard rivet specifications allow tailoring designs to fasteners rather than tailoring fasteners to designs. In addition, Thomson builds more than 250 standard models of rivet setting machines that can be quickly and easily adapted to most fastening applications. A closer look at Thomson rivets and machines reveals their inherent economy.







Drilled (Split)

#### Low-Cost Standard Rivets

There are four basic types of Thomson Standard Rivets: Semi-Tubular, Shouldered, Deep-Drilled and Bifurcated (split). Semi-Tubular and Shouldered Rivets, applied through pre-drilled or pre-punched holes, cut costs of assembling metal, wood, plastics and other hard materials because of lower prices and easier setting than most other fasteners. Shouldered Rivets also serve as pivots or bearing surfaces for moving parts. Deep-Drilled and Bifurcated (split) Rivets are self-piercing fasteners for leather, plastics, fabrics and other soft materials. Split Rivets also drive through light gage metals. Elimination of pre-drilled or pre-punched holes is a big cost reduction.

Thomson Standard Rivets are produced from aluminum, brass, copper, nickel-silver, low-carbon steel, stainless steel, etc. They are also plated, oxidized or japanned in a wide range

of finishes.



A TYPICAL BENCH TYPE AUTOMATIC HIGH-SPEED, RIVET SETTING MACHINE

#### High-Speed Rivet Setting Machines

Thomson's line of more than 250 easily adapted rivet-setting machines offers further reductions in assembly costs through automatic hopper feed, multiple rivet-setting heads, special work handling and loading devices and other optional features. All machines, available on a sale or lease basis, are custom tooled for each job and factory proved on customers' actual samples.

#### Design and Engineering Service

Thomson engineers analyze fastening problems and make specific recommendations at little or no cost. When called in before designs are frozen, they can often eliminate the need for costly special fasteners and tooling. For suggestions or quotations, submit sketches, prints, or samples.

#### Free "Fastener Fact File"

(Due off the press shortly)
This manual belongs in your value

analysis file. Reserve your copy today.

Write Judson L.

Thomson Mfg. Co., Dept. P, Waltham 54, Mass.





JUDSON L. THOMSOM MFG. CO., WALTHAM 54, MASS.

For More Information Circle No. 331 on Inquiry Card-Page 17

# association news

#### Program Aids

To assist program chairmen in planning association meetings and company conferences, available film and other program aids will be listed in these columns from time to time.

"The Story of Creative Capital."
A 16mm, animated technicolor film which runs fourteen minutes with sound and original music. Available from local chamber of commerce or it can be rented for \$15 from Audio-Visual Services Department, Chamber of Commerce of the United States, 1615 H St., N. W., Washington 6, D. C.

"Speaking of Wire Rope." A film showing the manufacture, use and care of wire rope. 16mm, Technicolor, sound, narrated by Hugh Beaumont. Available at no charge from Pittsburgh Film Distribution Center, United States Steel Advertising Division, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

"The One Man Gang." A film on materials handling. 16mm, sound, black and white. Available from Towmotor Corporation, 1226 East 152nd Street, Cleveland 10, Ohio.

"Safety Saves." A training and safety film for industrial truck operators, filmed at on-the-job factory and warehouse locations. 16mm, sound, black and white, running time: 25 minutes. Available from Clark Equipment Company, Advertising and Sales Promotion Department, Battle Creek, Michigan.

"Electronic Computers Improve Management Work." The film shows a predicament in a typical manufacturing organization when a large order is cancelled. 16mm, sound, color, running time: 15 minutes. Available at a rental of \$10 from Educational Film Sales Department, University of California, Los Angeles 24, California.

for the first history-making transatlantic flight . . .





# Control Devices

were installed on the

"Spirit of St. Louis"



Interest in the famous flight is being recreated by the Leland Hayward-Billy Wilder production of Lindbergh's Pulitzer-prize-winning book "The Spirit of St. Louis," which stars James Stewart and is presented by Warner Bros. Stewart is shown above in the cockpit of one of the three flying replicas built for the picture, authentic in every detail from radial motor to wicker seat. Lunkenheimer control devices, selected for their dependability on the original flight, are reproduced on the instrument panel. The Lunkenheimer Co., Cincinnati 14, Ohio.



More than a quarter-century ago,
Lunkenheimer quality was almost
as famous as it is today. When the
fuel system of Charles Lindbergh's
gallant little Ryan monoplane
was reworked for the first
transatlantic flight, precision
Lunkenheimer components were
chosen . . . the fuel strainer,
primer, and ground key cocks
to cut in the reserve gas tanks,



LUNKENHEIMER THE ONE STREET NAME IN VALVES

For More Information Circle No. 332 on Inquiry Card-Page 17

# purchasing people

## in the news



William G. Evans



W. Robert Bruce

Four new appointments in the material department of Convair, San Diego, Calif., a Division of General Dynamics Corporation, have been announced by B. P. Gibbons, manager of material. William G. Evans, who has been with the purchasing department since 1948 as a staff assistant in



Tom C. Tudor



M. F. Moseley

material department and later as purchasing agent, has been named chief of subcontracting. He is the division's representative for small business. Mr. Evans is a graduate of the Buffalo, N. Y., School of Law and a member of the New York State Bar. Tom C. Tudor has been appointed chief of in-

ventory control and will head material control and government furnished parts and equipment departments. He received his mechanical engineering degree from Kansas State University and held responsible positions with Boeing Airplane Company and North American Aviation, Inc., before joining Convair in 1952. W. Robert Bruce, former manager of material for Solar Aircraft Corp., has been made purchasing agent for subcontracting. He is responsible for procurement of machine parts, tooling, processing and miscellaneous assemblies. M. F. Moselev has been assigned as material services administrator. He will be in charge of all cost estimates of manufacturing materials, material forecasts, departmental budget requirements, procedures and material reports. Mr. Moseley had been purchasing services administrator before assuming his new position.

The appointment of Elmer D. Erney as manager of the purchasing department in the head-quarters office, has been announced by Cities Service Co., New York. He succeeds John J. Dorr, who has been named manager of trade relations. Mr. Erney, formerly purchasing agent for one of the principal Cities Service subsidiaries, Cities Service Oil Co., (Pa.), will be replaced in that position by Frank T. Whitty. He had previously been assistant purchasing agent.



# SEPARATING and RELEASE PAPERS

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If it burns gas ()
look to Johnson— Since 1901

For More Information Circle No. 334 on Inquiry Card-Page 17



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For More Information Circle No. 360 on Inquiry Card—Page 17



John W. Lindsey, director of purchases, has been elected vice president-purchases of Jones & Laughlin Steel Corp., Pittsburgh,

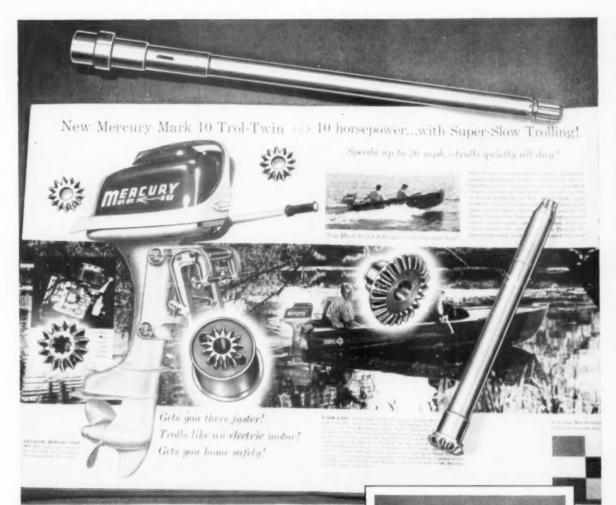


John W. Lindsey

Pa. He earned his degree in Business Administration at Penn State University and his degree in Law from the University of Pittsburgh in 1940. Mr. Lindsey practiced law in Butler then became assistant general counsel in the Office of the Chief of Ordnance in Washington, D. C. in 1946. He joined the legal department of the corporation in 1949, after an association with a law firm in Washington. He was named assistant purchasing agent in that year and became assistant director of purchases in 1951; and general purchasing agent in 1953. Two years later he was made director of purchases.

Flexonics Corporation, Maywood, Illinois, has announced the appointment of Mark D. Thackaberry as assistant purchasing agent on the central staff. He was formerly an assistant to the vice president for manufacturing. In his new position, Mr. Thackaberry will be responsible for the purchase of all raw materials and will assist in the administration

(Please turn to page 274)

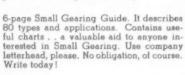


#### The First Automatic Outboard Transmission Features G. S. Small Gearing

The rugged new MERCURY Mark 10 Outboard, with Gearing by G. S., offers the first automatic transmission in the industry! The unique transmission engineering development permits one-hand control of throttle, neutral, forward and reverse with the twist-grip on the tiller handle. \* You, too, can depend upon G.S. for TOP performance in the Gearing you need. Skilled G. S. engineers will gladly lend you valuable aid in determining the ONE best, and most economical application. Send drawings and descriptions today.



letterhead, please. No obligation, of course. Write today!





SPURS . SPIRALS . HELICALS . BEVELS . INTERNALS WORM GEARING . RACKS . THREAD GRINDING

ORLD'S LARGEST EXCLUSIVE MANUFACTU OF FRACTIONAL HORSEPOWER GEARIN



41 Years of Specializing in Small Gearing!

# purchasing people

Abell-Howe Company, Chicago, Ill., has named G. J. Muntean general purchasing agent. The company is an engineering, contract-



G. J. Muntean

ing, manufacturing firm, specializing in the "one package" custom-engineered, custom-built method of building.

The Parker Pen Company, Janesville, Wisconsin, has announced the appointment of **Orein** G. De Lap to the position of buyer



Orein G. De Lap

of metals and plastics. A graduate of the University of North Dakota, Mr. De Lap was formerly associated with Gibbs Mfg. and Research Corporation as purchasing agent.

U. S. Steel Corp.'s American Steel & Wire Div., has announced the appointment of Elmer F. Ledvina as buyer for the Cleveland-Pittsburgh District. Mr. Ledvina replaces F. J. Vaigi, who retired after almost 40 years of service with this U. S. Steel division.

Promotion of Edward S. Aucoin to the position of purchasing agent has been announced by Delta Tank Manufacturing Co., Inc.,



Edward S. Aucoin

Baton Rouge, La. Mr. Aucoin has served as buyer, expeditor and assistant purchasing agent since joining the company two years ago. Prior to that he was an inspector for the Federal Public Housing Authority and purchasing agent for the Department of the Army's Baton Rouge Engineer Depot.

Peters-Dalton Inc., a subsidiary of Detroit Harvester Co. Detroit, has announced the appointment of Ray Hurt as purchasing agent. Mr. Hurt, transferred from Detroit Harvester's Dura Division, Toledo, Ohio, came to the company with a background of eight years in the purchasing field.

John F. McLane, formerly assistant director of purchases of Minneapolis-Moline Co., has been appointed director of material in



John F. McLane

the Rochester, N. Y. plant of the American Machine & Foundry Co., N. Y. Mr. McLane will be responsible for production control, inventory control and shipping as well as purchasing.

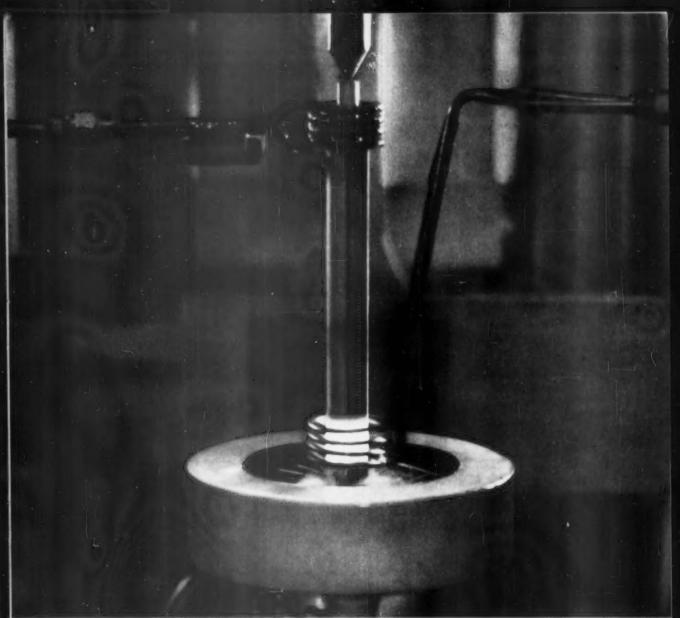
The appointment of R. D. Hunt as vice president and directors of purchasing for Wells Specialty Co., Inc., North Liberty, Indiana



R. D. Hunt

has been announced. Mr. Hunt has been a member of the company's administrative staff since 1950.

For More Information Circle No. 336 on Inquiry Card—Page 17->
PURCHASING



Ketos shaft being induction hardened to Rockwell 55-56, while ends remain soft for final machining. Photographed at Control Instrument Co., Inc., Brooklyn, N. Y.

# KETOS has wide hardening range with minimum volume change...

Ketos is a low priced alloy tool steel that can be hardened from low temperatures with practically no volume change. It has deep hardening qualities, and a fine grained structure, that make it desirable for many production parts.

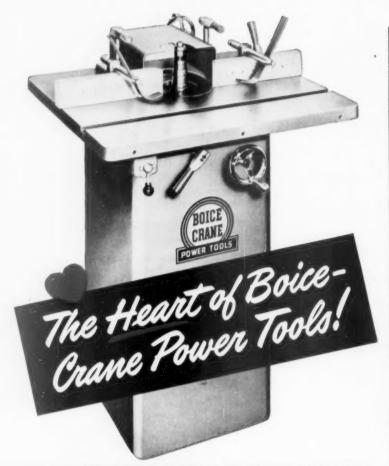
That's why nondeforming Ketos is well suited not only for most tool steel applications such as gauges, dies, and taps but also for close-tolerance, wear-resistant parts like the actuator bar shown in the induction heating unit above. The thin contact edges of this particular part withstood a "life test" of over 4-million high speed blows. No other steel tested lasted more than I-million cycles before it chipped and failed.

If Ketos sounds like the steel you should be using, call your nearby Crucible warehouse. Stocks of Ketos and dozens of other special tool steels are large, delivery fast. Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.

CRUCIBLE first name in special purpose steels

Crucible **America** Company

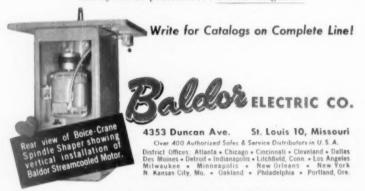
Canadian Distributor - Railway & Power Engineering Corp., Ltd.



#### **BALDOR STREAMCOOLED MOTORS**

For years famous Boice-Crane Power Tools have enjoyed a reputation for faultless performance. And for years, like hundreds of other leading manufacturers, Boice-Crane has specified and depended on Baldor Streamcooled Motors to maintain its enviable prestige.

If customers demand this kind of superior performance from <u>your</u> equipment, it will pay you to consult Baldor. Experienced engineers are available to help take the kinks out of all your knotty motor problems . . . without obligation!



For More Information Circle No. 338 on Inquiry Card-Page 17



(Continued from page 270)

of purchasing for the company's eight U. S. plants and 15 field offices. A veteran of 12 years with the firm, he has advanced through positions in sales, marketing and production.

Donald H. Lyons has been appointed director of purchasing by Johns-Manville Corp., New York. He succeeds W. R. Reynolds, who



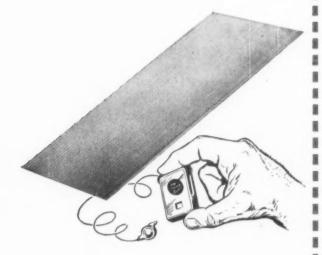
Donald H. Lyons

has retired after 44 years service with the corporation. Mr. Lyons began his career with the firm in 1928 and has since held various positions of responsibility in the company's purchasing organization. He is a graduate of New York University and completed the Advanced Management Program at the Harvard Graduate School of Business Administration. Long active in national purchasing circles, Mr. Lyons is a former president of the Purchasing Agents Association of New York, a member of N.A.P.A. and a member of the Harvard Advanced Management Association.

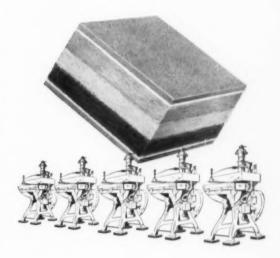
The appointment of **Edward C**. **Frey** as purchasing agent has been announced by Yawman and Erbe Mfg. Co., Rochester, N. Y. Mr. Frey was previously purchasing

(Please turn to page 278)

# A paper-thin battery separator felt for hearing aids



# ... or Vibra-Mount\* felts to cut machine vibration



# Put the MAGIC of American Felts to work for you

New things are happening most every day at American Felt Company. Exciting things you never dreamed could happen with felts. The battery separator, for example, is made from one of our Feutron\*\* Felts, a combination of synthetic fibers that makes this separator more resistant, longer lasting than the usual material employed.

On the other hand the unusual properties of wool fibers as combined in American's Vibra-Mount Felt

eliminate as much as 85% of a machine's vibration, no bolts are needed to fasten machines to concrete or wood floors, "walking" of machines is prevented.

These are just two of the many uses for the felt wonders constantly being produced through the ingenuity of American's Research and Engineering Staff. Use your imagination and many more uses will come to mind.

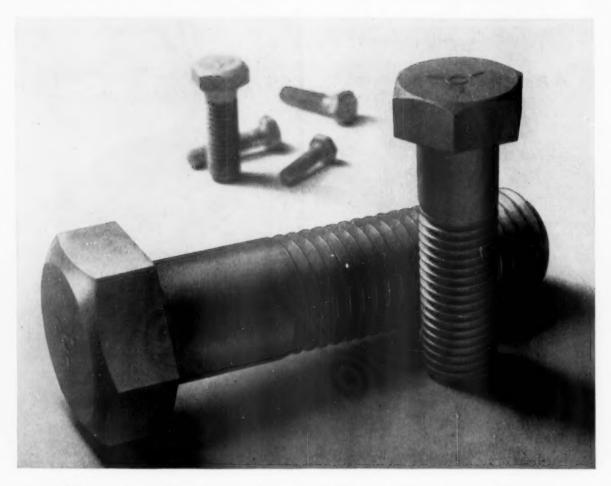
For the first things in felt it will pay you to call American first. Design with American Felts.

"Trademark Reg. \*\*Trademark Reg.



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SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Greenville, S. C., Dallas, Boynton Beach, Fla., San Francisco, Las Angeles, Portland, San Diego, Seattle, Montreal.—PLANTS: Glonville, Conn., Franklin, Mass., Newburgh, N. Y.; Detroit, Mich., Westerly, R. L.—ENGINEERING AND RESEARCH LABORATORIES: Glonville, Conn.



# Cleveland upset forged hexagon head cap screws make your assemblies stronger and safer

Cleveland's upset forging process puts an extra measure of fastener muscle into your assemblies. The flow lines in every hexagon head cap screw follow the contour of the head, eliminating the planes of weakness along which shear might occur under the dynamic stress of heavy impact and vibration.

Cleveland hexagon head cap screws are manufactured from a wide variety of steels and in many different tensile strengths. In most cases, a Cleveland standard will serve as well as a special and will be much less expensive. Check the chart at the right for the one best suited to your needs. Then see your local Cleveland distributor. He stocks Cleveland hexagon head cap screws in sizes and physical properties to meet the most exacting demands of modern machinery design. All standard size cap screws in bright and quenched and tempered steels are available without delay—alloy steels on short notice. And remember, your distributor is backed by the most up-to-date production facilities and the largest factory stock of hexagon head cap screws in the world.



#### THE CLEVELAND CAP SCREW COMPANY

4444-9 Lee Road, Cleveland 28, Ohio

WAREHOUSES: Chicago · Philadelphia · New York · Los Angeles

TENSILE STRENGTHS OF CLEVELAND HEXAGON HEAD CAP SCREWS

Product	Size, in.	Tensile Strength, psi
Bright	Up to 1/4 incl. 1/2 to 11/4 incl. Over 11/4 to 11/2 incl.	85,000—105,000 75,000—100,000 65,000 min
Quenched & Tempered (SAE Grade 5)	Up to ¼ incl. Over ¼ to 1 incl. Over 1 to 1½ incl.	120,000 min 115,000 min 105,000 min
Quenched & Tempered (SAE Grade 6)	Up to 1/4 incl. Over 1/4 to 1/4 incl.	140,000 min 133,000 min
Alloy (SAE Grade 7)	Up to 1½ incl.	130,000 min.
Alloy (SAE Grade 8)	Up to 1½ incl.	150,000 min.
Bright	Over 1½ to 2½ incl.	55,000 min.
Quenched & Tempered	Over 1½ to 2½ incl.	90,000 min.
Alloy	Over 1½ to 2½ incl.	125,000 min.

Note: Higher physicals, through use of selected

GET YOUR COPY NOW — Pocket-size card giving you physical properties of Cleveland hexagon and socket head cap screws and Cleveland Place bolts.



For More Information Circle No. 340 on Inquiry Card—Page 17 276

For More Information Circle No. 341 on Inquiry Card—Page 17Purchasing



Mr. Russell Stark, Director of Purchases, Burroughs Corporation; President, Purchasing Agents Association of Detroit.

#### Burroughs appreciates Scott quality, value and service

"We made a value analysis of Scott towels," says Russ Stark, Director of Purchases for Burroughs Corporation, "on the basis of quality,

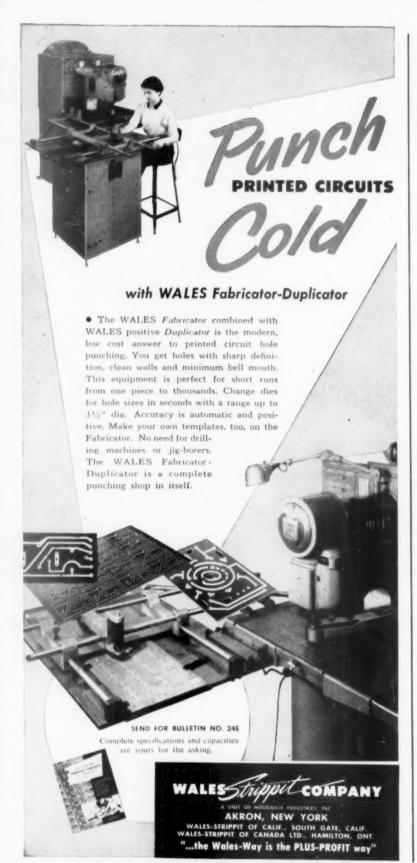
performance, value and service. Scott Paper fulfills all requirements. Employee preference confirmed—2 to 1—our decision to buy Scott."

Your Scott Distributor can help you with your washroom problems.





Makers of the famous Scott paper products you use in your home. See Scott's TV program on NBC—"Father Knows Best."



For More Information Circle No. 342 on Inquiry Card-Page 17



(Continued from page 274)

agent of J. Cunningham & Son and before that was assistant purchasing agent at Fasco Industries, both in Rochester.

R. E. Hennessy, head of the purchasing department of National Distillers and Chemical Corp., New York, has been elected a vice

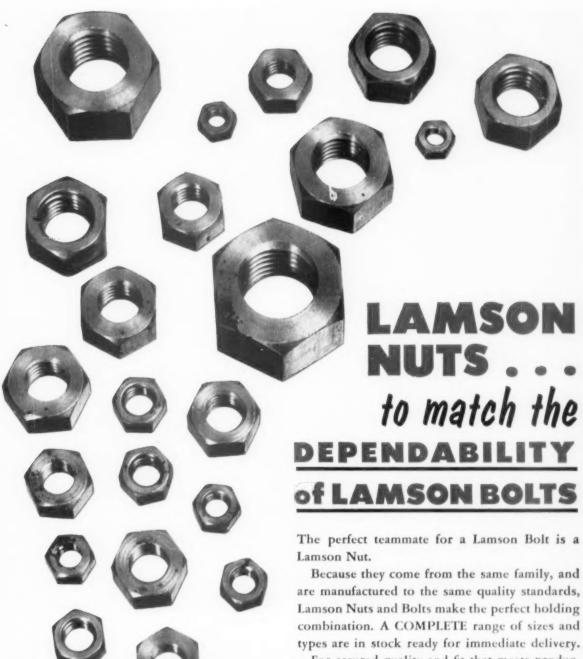


R. E. Hennessy

president of the corporation. A native of Louisville, Ky., Mr. Hennessy joined the American Medicinal Spirits Company in 1928. This was merged with National Distillers and he has been with the firm throughout the 28 years since.

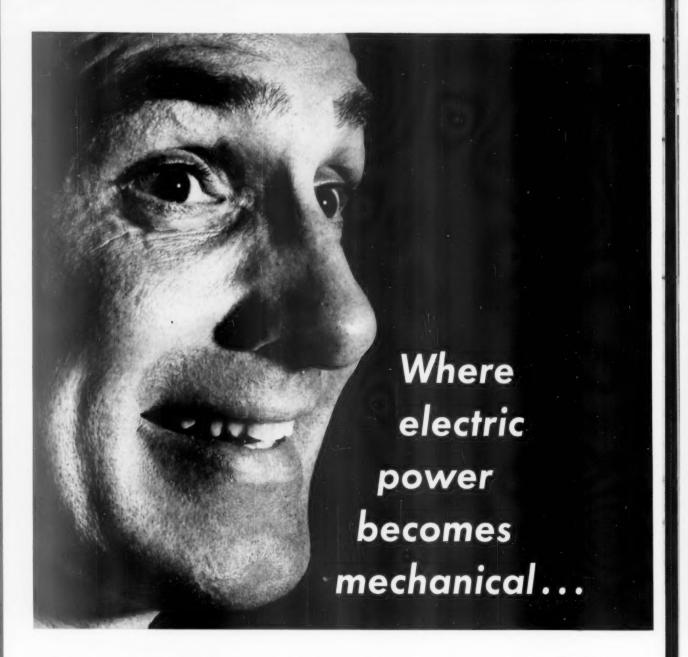
Lewis A. Jones, former president of the National Association of Purchasing Agents, and for the past several years procurement consultant at Wright-Patterson Air Force Base, Ohio, has joined the staff of the University of Dayton as director of student placement.

FOR MORE
INFORMATION ON
PRODUCTS IN THIS
ISSUE USE INQUIRY CARD
PAGE 17

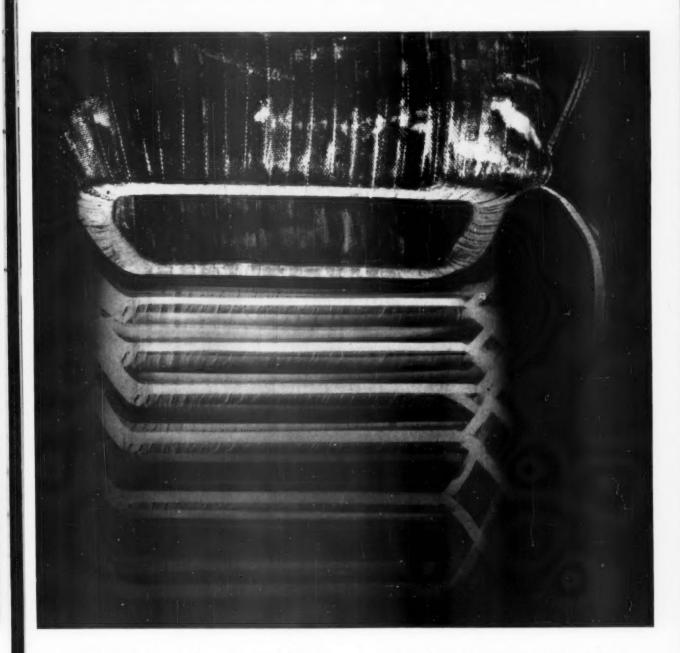


For assured quality and fit that meets production line standards, always specify Lamson Nuts.





Tough Westinghouse coils combat thermal and mechanical stresses



Coils are crossroads for tremendous forces in motors, for it's here that electric energy is transformed into mechanical work.

Pre-tested Westinghouse coils are best suited for Westinghouse equipment. Only Westinghouse has its original specifications to provide precise duplicate and improved-design coils. Accurate dimensions assure tight fit on pole piece and in core slot to speed heat dissipation, help coils withstand shock and vibration.

Continuous research development at Westing-

house provides you with engineered coils of performance-proved insulation materials and varnishes...to resist heat, dirt, moisture and chemical attack.

Insist on Westinghouse coils for your Westinghouse equipment. Replacement coils are stocked at a nearby warehouse in the nationwide Westinghouse network. To order, and for more information, contact your local Westinghouse sales office. Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa. Judi 144

# YOU CAN BE SURE ... IF IT'S Westinghouse





It contains complete details on all Campbell Sling Chain equipment—together with lots of valuable information on care and use. And you'll find step-by-step instructions for ordering each type of sling chain and attachment—illustrations—specifications and working load limits for all grades.

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Makers of Famous CAMPBELL Lug-Reinforced TIRE CHAINS
For More Information Circle No. 345 on Inquiry Card—Page 17



Upon his retirement as director of purchases for Lone Star Gas Company, Dallas, Texas, Ben R. Newbery joined the staff of



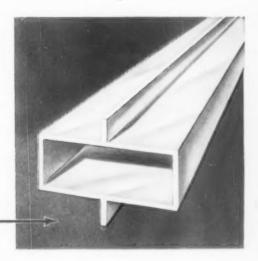
Ben R. Newbery

Keith-Kote, Inc., Grand Prarie. Mr. Newbery will also represent, within a restricted area in Texas, the Norton-McMurray Company, Chicago, Ill. He is a former president of N.A.P.A. and holder of the Shipman Award for 1955 for outstanding services to the purchasing field. Mr. Newbery has been made an honorary member of both the Dallas and Fort Worth Associations, where he will continue his close association with the numerous friends he has made since the time of his charter membership.

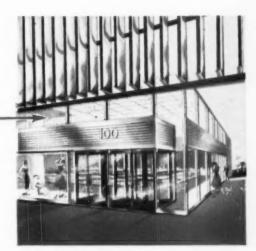
John S. Babiy, purchasing manager of Permacel Tape Corp., a Johnson and Johnson Company, New Brunswick, N. J., lectured on "Savings through Purchasing and Inventory Control during a course in Administrative Management for Small Manufacturers. The course was sponsored by Rutgers University and the New Jersey Manufacturers Association in cooperation with the Small Business Administration. The course was received with such enthusiasm that two sections were

(Please turn to page 286)

If you want 85 feet of aluminum architectural fin tubing like this...



For a store front like this...



...get the exact amount you want, when you want it cut to proper lengths—from your

# REYNOLDS DISTRIBUTOR

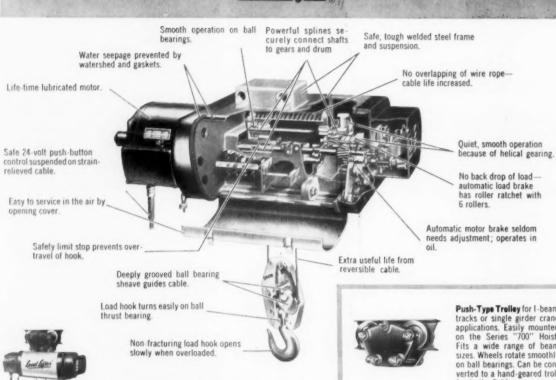
who can also supply—from warehouse stocks—copings, gravel stops, thresholds, window sills, extruded angles, channels, bar and handrails.



See "CIRCUS BOY", Reynolds exciting dramatic series, Sundays, NBC-TV.

Look under "Aluminum" in the classified phone book for your Reynolds Distributor

## Here's Why the Load Lifter Stays on the Job



The Series "700" 'Load Lifter' Electric Hoist is built for heavy-duty service. Simple design reduces maintenance requirements. It is a low headroom hoist with high hook lift. It is fast. A ton can be lifted at 60 FPM speed. The two automatic brakes operate simultaneously. This

means fast stops that permit precise spotting of loads. Each brake alone can hold the full load. Safety devices protect the operator, the load and the hoist itself. Ball bearings minimize frictional drag and power consumption.

The Series "700" 'Load Lifter' is demonstrating its superb performance every day in large and small plants. The same reliability, convenience and economy can be yours. Capacities: ½ to 15 tons. Where fragile loads must be handled, models with two speeds, one 3 times faster than the other, are commonly used. All types of suspension available: lug, push-type trolley, hand-geared trolley, and motor-driven trolley. Check with your "Shaw-Box" Distributor for details or write us for Bulletin 410.





# Load Lifter . ELECTRIC HOISTS

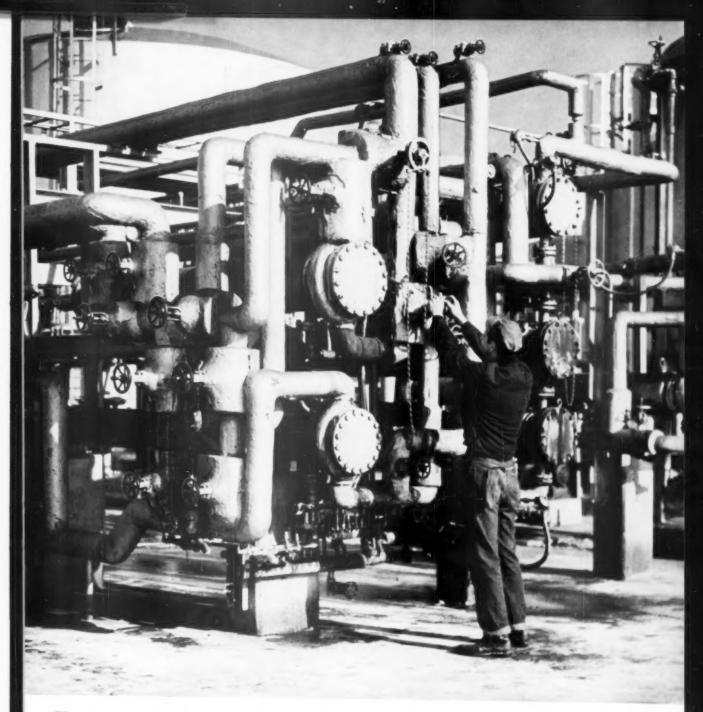
#### MANNING, MAXWELL & MOORE, INC.

SHAW-BOX CRANE & HOIST DIVISION

378 West Broadway . Muskegon, Michigan

Builders of "SHAW-BOX" and 'LOAD LIFTER' Cranes, 'BUDGIT' and 'LOAD LIFTER' Hoists and other lifting specialties. Other Divisions produce 'ASHCROFT' Gauges, 'HANCOCK' Valves, 'CONSOLIDATED' Safety and Relief Valves, 'AMERICAN' and 'AMERICAN-MICROSEN' Industrial Instruments, and Aircraft Products.

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Avenue Road, Galt, Ontario.



#### Easy way to keep tall oil moving: Aloyco jacketed valves

You're looking at a portion of the recently completed tall oil fractionation plant Foster Wheeler built for Union Bag-Camp Paper Corporation near Savannah, Ga.

The jacketed Aloyco stainless steel valves (with red hand wheels) get quite a workout in the two stage fractional distillation process here. Rosin and an intermediate fatty acid are produced in the first stage. Then the fatty acid is rerun through the mainfractionating tower to produce a refined product for the

manufacture of high grade alkyd resins, processing oils, soaps and chemical intermediaries.

Completely jacketed Aloyco valves are designed to ease handling of tars, tar oils, rosins and other materials difficult to move at room temperature.

Aloyco's integrally cast, completely jacketed valves insure long life and low maintenance in high temperature corrosive service. For more information, write Alloy Steel Products Co., 1301 West Elizabeth Ave., Linden, N. J.

Longer Lasting ALOYCO VALVES

ALLOY STEEL PRODUCTS CO. LINDEN NEW JERSEY



after location (2) On location after location, they give a drop-tight seal. How can you beat this combination for economy... at any price?

#### QUICK FACTS

- · Extra wide bronze seats resist pitting and corrosion
- Nut and body of air-refined, high test malleable iron are practically unbreakable
- Heavy shoulders can withstand the toughest wrench abuse
- Each Dart is individually vacuum-tested

#### DART UNIONS Products of DART UNION COMPANY PROVIDENCES, R.I. GENERAL THE Fairbanks COMPANY

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BRANCHES: NEW YORK 3
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AVAILABLE THROUGH YOUR LOCAL DISTRIBUTOR

For More Information Circle No. 349 on Inquiry Card-Page 17

#### purchasing people

(Continued from page 282)

scheduled and Mr. Babiy spoke on April 23 and May 14. Mr. Babiy is a member of the North Jersey Association and chairman of their Bulletin Advisory Committee.

Russell C. Wenz has announced the opening of the Wenz Electric Sales Service at 3255 W. Liberty Ave., Pittsburgh 16, Pa. The new facilities will handle sales and service of power and distribution transformers and allied equipment representing Moloney Electric Co., St. Louis, in the tri-state area. Mr. Wenz, president of the organization, has long been active in N.A.P.A. affairs. He was former president of Public Utility Buyers Group and for many years chairman of the Committee on Non-Ferrous Metals.

Inland Container Corp., Indianapolis, Ind., has announced the appointment of **Chester Clark** to the position of general purchas-

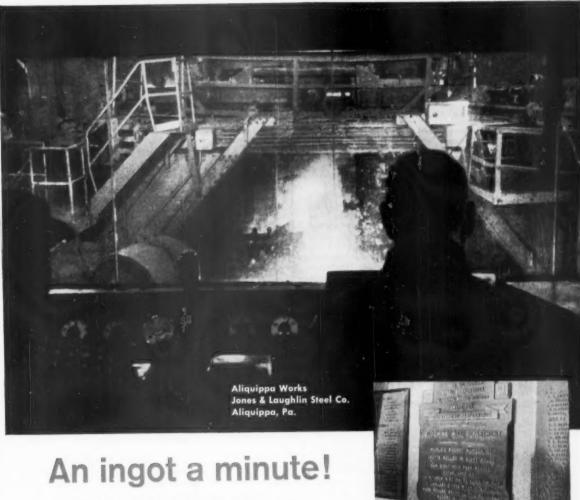


Chester Clark

ing agent. A member of the company since 1935, Mr. Clark started his career in the purchasing department and was named purchasing agent in 1952. He is an active member of the Indiana Purchasing Agents' Association.

SALES

AGENT



and never a lubrication failure with Cities Service EP-21 Lubricant!

At Jones & Laughlin's Aliquippa Blooming Mill, they believe in production with a capital "P"!

Not only does J&L's Aliquippa Mill hold the world's record for ingots rolled in an eight hour turn (576), but they've set a year-in, year-out average of an ingot per minute!

How do they sustain this production for such long periods?

One answer lies in their modern, 44-inch, two-high reversing unit, powered by four 3000 h. p. motors arranged in tandem twin drive. Another can be found in their lubricant . . . Cities Service EP-21.

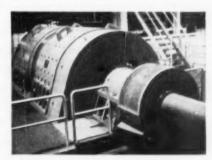
Used on main bearings, manipulator slides and window liners, Cities Service EP-21 and its superior additives provide an unusually tough film...tough enough to stand the highest pressures, the greatest shock loads with no loss of lubrication, no danger of rust or corrosion.

Yes, Jones & Laughlin is pleased with Cities Service lubricants! You'll feel the same when Cities Service goes to work in your operation. Talk with your Cities Service Lubrication Engineer. Or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



QUALITY PETROLEUM PRODUCTS

Award for 8-Hour Turn Recard is displaye proudly outside mill. J&L smashed previoes record by 38 ingots—rolled up new total of 576! Year-in and year-out, the plant averages an ingot a minute, with flawless lubrication provided by Cities Service.



Four 3000 h.p. Motors power the blooming mill at J&L's Aliquippa Works. These are 70 to 140 rpm, double-armature units arranged in tandem twin drive. At 70 rpm, they can reverse in under a second. Equally flexible is the mill's lubricant—Cities Service EP-21,

#### CDF PLASTICS AND FIBRE

#### CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon\*—such as spaghetti tubing, glass-based laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflonfrom tapes to high-heat-resistant printed-circuit laminates—your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

\*duPont trademark for its tetrafluoroethylene resin

Heart of the best printed circuits-

#### CDF METAL-CLAD LAMINATES

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon\* resin and woven glass cloth for use under sustained temperatures of 200° C. In addition, CDF offers a full range of metal-clad laminates to meet every known demand of printed circuitry. High foil-bond strength withstands soldering heats, reduces assembly rejects. Full line of metal-clad grades—woven-glass and paper-base—with Teflon\*, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Metal-Clads! Write for CDF Metal-Clad Folder.

\*duPont trademark for its tetrafluoroethylene resin

#### CDF DILECTO LAMINATED PLASTICS



for electrical and mechanical applications

DILECTO®, made in scores of grades, is the highest-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

Resins available in Dilecto:

Phenolic Epoxy Polyester
Silicone Melamine Teflon\*

#### Bases for Dilecto:

Woven Glass Fabric Woven Nylon Fabric Woven Asbestos

Fabric
Waven Cotton
Fabric

Glass Mat Asbestos Mat Cotton Mat

Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-B.

\*duPont trademark for its tetrafluoroethylene resis



PLASTICS
FABRICATION
BY CDF SAVES
YOU TIME,
MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of plastics and/or fibre parts on time and as specified. No time is lost at CDF between raw-material production and final fabrication; in fact, special production runs are often scheduled to coincide with machining, to save the customer money on finished parts. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!



CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of silicone rubber, silicone varnish, Teflon\*, and Micabond, with and without backings. Color identification—CDF tapes of Teflon are made in the standard RETMA identifying colors. Call your CDF sales engineer, or write for test samples.

\*duPont trademark for its tetrafluoroethylene resin

#### **PURCHASING NEWS**



#### DIAMOND VULCANIZED FIBRE

Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, or formed specialties. Write for Catalog

LOW-COST VULCOID Resin-impregnated Fibre.

Vulcoid (made only by CDF) combines the desirable electrical properties and mechanical adaptability of vulcanized fibre with the great moisture-resistance and dimensional stability of phenolic laminates. UL-approved as Class A insulation in electronic equipment. Write for Bulletin V-55.





#### CDF CELORON MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electro-mechanical parts made from CDF Celoron®. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate static-free loom parts, etc. Get samples and Catalog C-56 by writing to CDF or asking your CDF sales engineer.

For a better motor or generator-

#### CDF MICABOND INSULATING PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylart polyester film; Fabricated Parts of various shapes. CDF supplies and fabricates of various shapes. CDF supplies and fabricates Micabond to your strictest specifications—on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-55

tduPont trademark

#### THERE'S A CDF SALES OFFICE NEAR YOU

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CHICAGO II, ILL. DElaware 7-6266
1201 Palmolive Building
CLEVELAND 14, OHIO Cherry 1-5220
550 Leader Building

DAYTON 2, OHIO Adams 4291 221 Third National Building DENVER 2, COLO. AComa 2-2236 260 Denver Club Bldg.

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ST. LOUIS 17, MQ. 2683 Big Bend Blvd. Mission 5-2253 2683 Big Delia SPARTANBURG, S. C. Spartanburg 3-6397

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MARWOOD LIMITED

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370 East 3rd Street

Canadian Representative DIAMOND STATE FIBRE CO. GF CANADA, LTD. 46 Hollinger Rd., Toronto 13, Ontario, Can.



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SUBSIDIARY OF THE BUDD COMPANY . NEWARK 41, DELAWARE



STOCK BORE SPROCKETS



STEEL AND CAST IRON SINGLE SPROCKETS



CAST IRON HUR SPROCKETS

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For off-the-shelf service on stock items, or quick deliveries on specials, your ACME distributor is fully equipped to meet your needs. His engineering experience, his facilities and know-how, and his draw on the largest stock of chain drive items in the country make him a useful man for you to know. Contact him now!

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80 page copy of Acme's latest catalog. Packed with valuable data.





For More Information Circle No. 352 on Inquiry Card-Page 17

#### purchasing people

The appointment of E. W. Lapp as purchasing agent has been announced by Dynex, Inc., Milwaukee, Wis. Mr. Lapp's previous



E. W. Lapp

experience includes work with Rockwell Mfg. Co., as assistant purchasing agent for the Arcade Division; sales engineer for the John Deere Company, and general manager for an implement sales company. Prior to his new assignment, he was purchasing agent for the M & M Gear Company, Anchor, Ill., where he had also been a project engineer supervisor. Mr. Lapp is a graduate of the Ohio State Engineering School.

Robert J. Wood has been appointed director of purchasing for Vega Industries, Inc., Syracuse, New York, manufacturers of heatilator fireplace units, universal dampers, heatilator service-way basement entrances, unibilt fireplaces and san-equip septic and storage tanks. With the company for the past 11 years, Mr. Wood has been assistant purchasing agent.

FOR MORE INFORMATION ON PRODUCTS IN THIS ISSUE USE INQUIRY CARD-PAGE 17

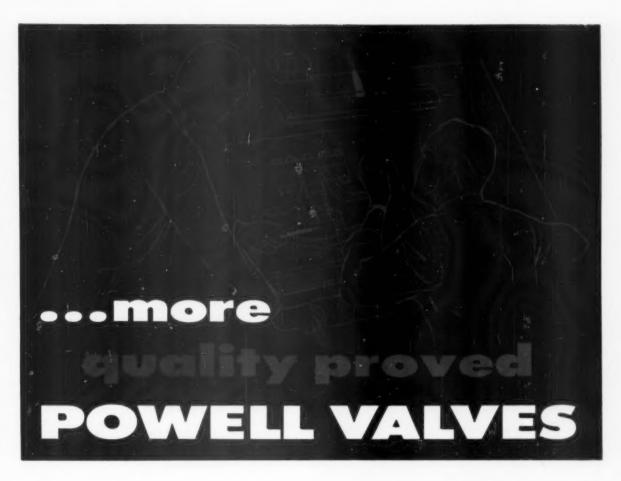




FIG. 375—Bronze Gate Valve for 200 Pounds W.S.P. Union Bonnet-Inside Screw Rising Stem.

FIG. 6061 - 600-Pound Steel Swing Check Valve.



FIG. 3003—Steel O.S.& Y. Gate Valve for 300 Pounds W.S.P.

FIG. 2608—Bronze "WS" Full Flow Globe Valve for 200 Pounds W.P. Fuller flow, less turbulence and pressure drop.





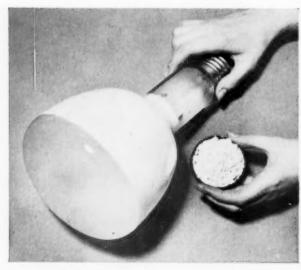
#### Designed for long life, designed for dependable service

Consult your Powell Valve distributor for all the facts about quality proved bronze, iron, steel and corrosion-resistant valves. No matter what the flow control problem, a Powell Valve can solve it . . . better.

THE WM. POWELL COMPANY, CINCINNATI 22, OHIO . . . 111th YEAR

For More Information Circle No. 353 on Inquiry Card-Page 17

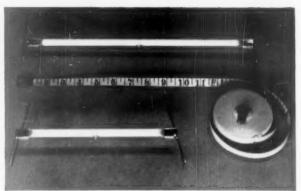
# Which of these 3 new General Electric Lamps solves your problem?



**G-E WHITE MERCURY (RW-1).** Want more light from existing mercury fixtures? Newly developed white phosphor powder generates more white light than ever before—gives you up to 63% more light on the work than any other General Electric 400-watt type. And the light from this new G-E Reflector Lamp costs you up to a third less!



G-E "POWER-GROOVE". Planning any new lighting? New General Electric "Power-Groove" fluorescent lamps give you nearly double the light of High-Output fluorescents... 2½ times as much as 8-foot Slimlines. Save 5% to 20% of your initial cost and have fewer parts to maintain. General Electric "Power-Groove" Lamps are Rapid Start lamps that need no starters—and are to be used in fixtures and circuits designed especially for them. If you're planning new lighting, investigate G-E "Power-Grooves". Several manufacturers now have fixtures available.



**G-E QUARTZ INFRARED.** Need more heat in less space? Here's the smallest, hottest source of electrical heating on the market (100 watts to the inch). They heat fast, cool fast; they're versatile, safe and economical . . . ideal for baking, drying, shrinking gears, setting inks.

There's a new or improved G-E Lamp to serve you. Check your local General Electric Lamp Representative, or send for literature. Write: General Electric Co., Large Lamp Dept. P-67, Nela Park, Cleveland 12, Ohio. Specify Quartz Infrared, "Power-Groove" or White Mercury.

Progress Is Our Most Important Product

GENERAL & ELECTRIC





dustries . . . paper-making, shipbuilding, metalworking, atomic energy, petro-chemical, and others ... with centrifugally cast cylinders and tubular parts, many of which can't be made by any other process to the exacting standards required.

It's the 47 years of specialized experience coupled with unequalled manufacturing facilities . . . that makes it routine for our engineers and production teams to cast and machine cylinders from 7" to 54" O.D. and up to 33 feet in length . . . in a wide range of alloys meeting

Do you need a giant cylindrical form . . . or a small one . . . machined to exact working dimensions? Send us your specifications; we'll reply promptly.

#### Sandusky Centrifugal Castings offer you 4 important advantages:

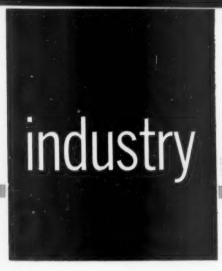
- 1. SUPERIOR MECHANICAL PROPERTIES
- -to meet exacting design requirements
  2. UNIFORM SOUNDNESS—free from harmul inclusions and porosity
- 3. NIGHEST QUALITY—to insure long, de-pendable, trouble free service
- JOB-READY CASTINGS machined to your exact specifications, eliminate extra costs from rejects, down-time, loss of production

#### CENTRIFUGAL CASTINGS

#### Sandusky Foundry & Machine Company

SANDUSKY, OHIO . Stainless, Carbon, Low Alloy Steels - Full Range Copper Base, Nickel Base Alloys

For More Information Circle No. 355 on Inquiry Card-Page 17



#### developments

#### Making Maximum Use of Supplier Know-How

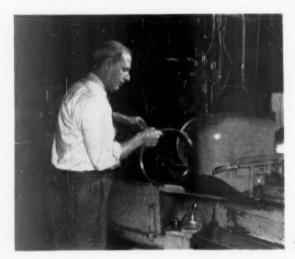
Making maximum use of supplier know-how is just good common sense. This is particularly true when the supplier is a specialist making products with which your own engineering staff is only superficially familiar. A case in point is the New Departure Division of General Motors Corporation. The Division's ball bearings are highly specialized precision products and no customer pretends to be a real expert in their design and application. Buyers very wisely rely on the help of New Departure engineers to help them.

Specialists in bearing design

can help customers make many savings in cost if they're permitted to go to work in the initial design stage. Sometimes it's possible to combine the bearing race with another part in the assembly. Simply selecting the right bearing for the job often isn't as easy as it sounds-and errors are expensive. All this boils down to the need for very close coordination between buyer and seller when a new product is being designed that uses ball bearings. The buyer that isn't smart enough to make use of his bearing supplier's engineering talent is a foolish one indeed.

New Departure found itself doing so much development work for customers that it decided to set up special facilities for it. With most new designs, customers like to get a small lot of experimental bearings so they can be tested. Changes can then be made if necessary before there's a big investment in production tooling. When the manufacturer makes lots of 25 or 50 bearings over his regular production tooling, costs can reach fantastic levels. Also, there's the problem of finding a time when production can be interrupted without hurting cus-

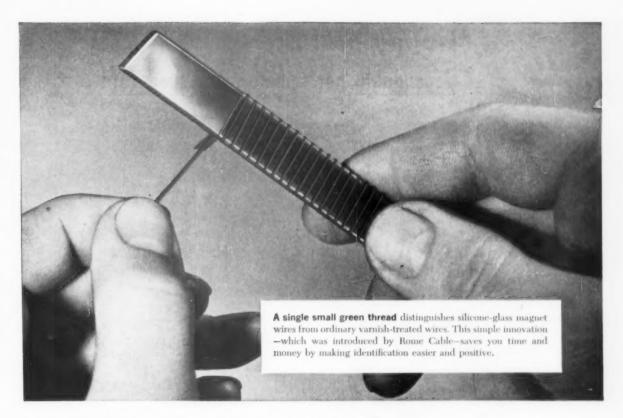
(Please turn to page 298)





This wobble plate bearing and its mating flange is a good example of how ball bearing specialists helped reduce cost of a refrigeration compressor.

Grinding an outer bearing race at New Departure's Bristol, Conn. model shop is Joseph Gagne.



Insulated by a tough silicone-glass covering . . .

# Rome's "green thread magnet wire" permits easier-wound coils for Class H equipment

You can prove to yourself that Rome Cable's silicone-glass magnet wire is best by comparing its properties with those of any other. It will pass any reasonable test you can give it. This premium quality magnet wire features:

**High heat resistance**—ideal for Class H equipment (180° C. hottest spot).

Outstanding abrasion resistance—this wire is made to order for the tight tension blocks and severe handling involved in coil winding.

**High tensile strength**—this tough insulation won't crack under the tension of coil winding.

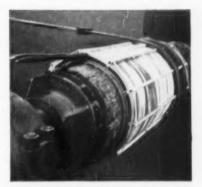
Perfectly bonded—this skip-free covering is tightly bonded to withstand severe bending.

In addition to the toughness and heat resistance of its insulation, this magnet wire features a copper conductor with consistently accurate dimensions, a surface free of burrs and defects, and the correct copper softness—all the result of Rome Cable's step-by-step quality control.

And—since proper spooling of finished wire is of real importance—Rome Cable accurately winds each layer. Spools are then carefully packed to prevent any damage during shipment.

Many magnet wire users are now specifying Rome's green thread wire for Class H use because they know that this silicone-glass magnet wire is more dependable and easier to use than any other. Why don't you do the same?

Contact your nearest Rome Cable representative for more information or write to Department 203, Rome Cable Corporation, Rome, New York.



High tensile strength of insulation is a must when winding transformer coils. Rome's silicone-glass magnet wire readily meets this requirement.

#### ROME CABLE

CORPORATION

For More Information Circle No. 356 on Inquiry Card-Page 17

happy balance between dependable performance and moderate cost

ROLLWAY

Tru-ROI precision, steel-cage, heavy-duty bearing with contoured guide lips assuring true right-line rolling, maintained voller alignment and thin oil film.

 Rollway's TRU-ROL Steel-Cage Bearings afford wide latitude in balancing dependable performance, long life, and high load capacity against moderate cost. They rate high in any comparison on a costperformance basis.

A choice of stamped steel retainers with contoured guide lips, or steel segmented retainers assure true rolling and an evenly distributed thin oil film - big factors in reducing power losses and heating.

#### "Crowned" Rollers Relieve End Stress

TRU-ROL offers the extra advantage of a finish-ground "crown" radius on the roller ends. That relieves high endstress and insures uniform load distribution over the entire length of the roller. The result: TRU-ROL Steel Cage Bearings carry heavier loads over longer periods without excessive end-fatigue. They are less affected by slight misalignment or shaft deflection.

Investigate TRU-ROL Steel Cage Roller Bearings before selecting any bearing in the medium price range.



 Rollway Metric Series Steel-Cage Bearings offer the greater load capacity of solid cylindrical rollers. plus the true right-line rolling of trunnion rollers turning in a rigid steel cage. There's no roller skew, no pinch out, no cam action. Design permits maximum bearing capacity . . , within small space . . . at moderate cost.



#### Let Rollway Help...

ROLLWAY BEARINGS

Our complete engineering and metallurgical services will gladly work with you on your problem. Simply write or wire any sales office. No cost. No obligation.

Rollway Bearing replacements are available through authorized distributors in principal cities. Consult your classified phone directory.

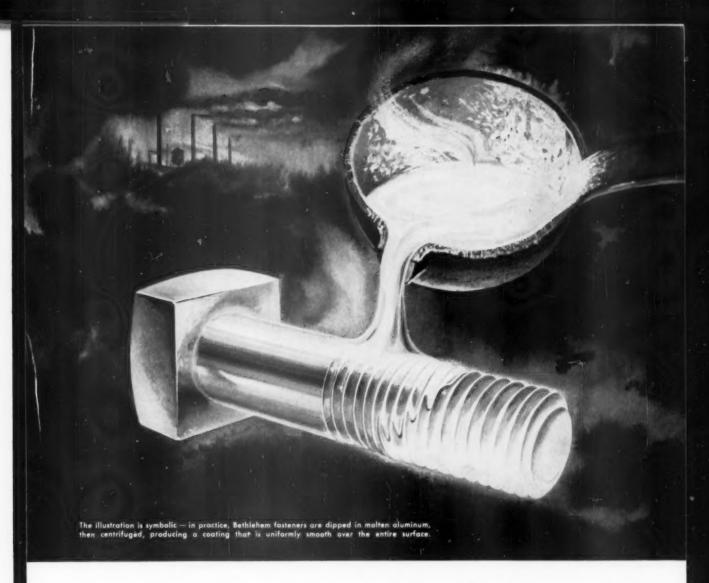
ROLLWAY BEARING CO., INC. SYRACUSE, N.Y.

ENGINEERING OFFICES: Syracuse · Boston · Chicago · Detroit · Toronto · Pittsburgh · CloveTand · Milweukoe · Seattla · Houston · Philadelphia · Los Angeles · San Francisco

For More Information Circle No. 337 on Inquiry Card-Page 17

For More Information Circle No. 357 on Inquiry Card-Page 17->

PURCHASING

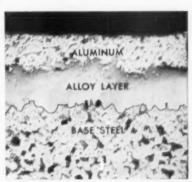


## Bethalume Coating for Fasteners is Superior in Corrosive Atmospheres

Looking for longer service life from steel fasteners exposed to corrosive conditions? Use fasteners which are protected by Bethlehem's Bethalume coating—the hot-dip aluminum coating which, in equal thicknesses, outlasts zinc in most corrosive atmospheres.

With Bethlehem's new coating facilities, fasteners of virtually all types and sizes can be coated with a smooth layer of corrosion-resistant aluminum. Excess coating is removed quickly while in the molten state, leaving the coated threads clean and sharp.

If you would like to know more about the Bethalume coating for fasteners, and the long service life it makes possible in atmospheric and heat corrosion, just get in touch with the nearest Bethlehem office.



Section through Bethalume coating, showing aluminum overlay and iron-aluminum alloy layer.

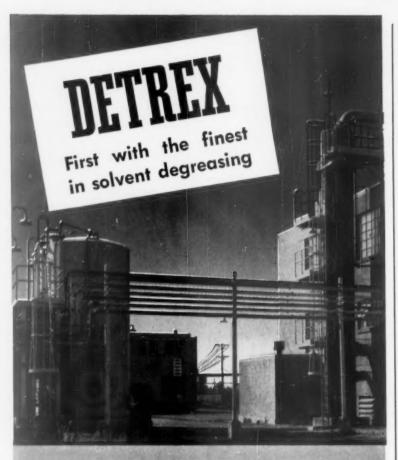
#### BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL





#### NEW PERM-A-CLOR

#### sets new standards for solvent stability

New DETREX PERM-A-CLOR\* trichlorethylene degreasing solvent - stabilized to a new high degree - has been proven on the toughest of metal cleaning jobs.

New PERM-A-CLOR\* - premium grade in every respect-excels in EVERY phase of solvent degreasing. It readily dissolves oils, greases, fats and waxes, yet will not attact any industrial metal or alloy. It is safe to use and easy to control. It distills like a pure chemical compound. And most important, its high stability assures longer solvent life and the substantial savings that result.

DETREX, pioneer in all phases of metal cleaning and processing, uses its experience and facilities to bring increased efficiency to any degreasing, washing or coating operation. Write today for detailed information on the wide range of DETREX machines, materials and services. There is a perfect combination to meet your requirements.

\*\*Perm-A-Clear to the registered trademark\*

\*\*PERM-A-Clear to the registered trademark\*

#### DETREX

CHEMICAL INDUSTRIES, INC.

BOX 501, DETROIT 32, MICHIGAN

For More Information Circle No. 358 on Inquiry Card-Page 17



(Continued from page 294)

tomers for the regular line of bearings.

New Departure's solution to the problem of small lots of special bearings is the model shop. The company has two such facilities—one for conventional bearings at its Bristol, Connecticut plant, the other for instrument and miniature bearings at Sandusky, Ohio. The two model shops are capable of making any bearing made on production basis. But that's where their resemblance to a production facility ends. Equipment is mostly general purpose of the type you'd find in a well equipped tool room. Whenever possible, standard components are re-worked to new dimensions in the model shop as to keep costs down.

Currently the model shops are providing more than 1,000 special bearings per month ranging in sizes from 3/64ths of an inch bore to those of large dimensions up to 15 inches in diameter. This doesn't mean New Departure salesmen are trying to push "special" designs on their customers. In fact, they try to get customers into standard bearings whenever possible. However, sometimes this just isn't economical. It's to New Departure's interest to help customers minimize cost. And of course it's vital that the bearing perform the function it's bought for. In many cases, special bearings are necessary to achieve this objective. The compressor wobble plate bearing illustrated on this page is a good example.

In the ball bearing field or any other, the buyer should be careful to consider product development assistance in addition to quality, delivery, and price before he selects the source.

PLEASE USE INQUIRY CARD—PAGE 17

#### NATIONAL LEAD COMPANY



...the equipment (and know-how)
for bonding lead to steel...to stay

It's no trick to stick lead to steel — in a temporary lamination.

But to wed the ductile, corrosion-resistant metal to a sturdy, stress-resisting alloy...in a virtually inseparable union...requires specially designed equipment and the savvy to operate it.

National Lead has the facilities and the experienced manpower to

bond lead to steel for tanks, stills, filters and all forms of acid-handling equipment.

The big names in the petroleum, chemical and petrochemical industries come to National Lead for "corrosion-proofed" vessels, piping, valves and fittings. They want assurance of long, trouble-free service, with a minimum of

down-time for repairs or replacement.

If you're in the market for acidhandling equipment of any type, the Dutch Boy's got it. Write:

NATIONAL LEAD COMPANY, Lined Products Department, 111 Broadway, New York 6, N. Y., Phone REctor 2-9400.



For More Information Circle No. 359 on Inquiry Cerd-Page 17

#### SEAL IT RIGHT SEAL IT TIGHT



#### G U M M E D SEALING TAPE

APPLIES SPEEDILY ORIPS TIGHTLY



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ATLANTIC'S ON-TO-STA GUMMED SEALING TAPES AND GUMMED SPECIALTIES SERVE EVERY SEALING NEED

DISTRIBUTED THROUGH PAPER MERCHANTS

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BRANCH OFFICES: PHILADELPHIA • PITTSBURGH CHICAGO • BUFFALO • BOSTON • HAVANA For More Information Circle No. 311 on Inquiry Card—Page 17



DeLuxe Saw and Tool Company has announced the opening of a second plant for manufacturing carbide tipped saw blades and cutting tools. It is located in Louisville, Kentucky, where the company's sales and accounting offices are now located. New blade production and complete factory repair service will be available at both the Louisville and High Point, N. C. plants.

Stevens Supply Corporation, Radford, Va., has been named a distributor of Byers wrought iron pipe. The Stevens firm will market wrought iron material in the Radford area under supervision of the A. M. Byers Company division office Philadelphia, Pa.

Mobile Drilling, Inc., Indianapolis, Indiana, has purchased the the earth drill business of the Buda Division of Allis-Chalmers Manufacturing Co., Milwaukee, Wis. No other products of the division are involved in the transaction. Dealers who have been selling earth drills will now be able to secure parts and service from Mobile Drilling, Inc. This acquisition increases range and sizes of equipment offered by the company.

Completion of a new 10,000 square foot addition to its Oakland, Calif., branch facilities, located at 699 Fourth Street, has been announced by Towmotor Corp., Cleveland, Ohio. The new addition tripling the available space, will be used to house an expanded parts department and maintenance facilities, including new welding and paint shops, and larger truck overhaul and rebuilding areas. A modern showroom for displaying new equipment also has been added.



For More Information Circle No. 361 on Inquiry Card-Page 17

# Hoyal.

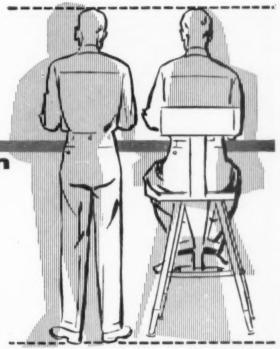
#### sitting-standing principle

#### increases production

If yours is assembly or other repetitive work requiring daylong speed and alertness, you'll find Page 7 of *Royal* Catalog No. 7001 very worthwhile reading. Fighting boredom and fatigue—at machines and assembly benches, in drafting rooms, laboratories, anywhere—is one of the pressing challenges facing all industry today.

Tired workers always cost more than Royal scating—more than you need to pay.

Developed by correct-posture specialists... built with added strength and stamina for toughest industrial needs... backed by 60 years of recognized steel furniture quality, scientific *Royal* Industrial Seating boosts morale, speeds output, saves money. Full facts are yours for the asking.



# world's finest industrial seating Model 515 Model 625-S Model 535 Model 535

#### time-saving (Royal) vertical files, shelving, and cabinets

Royal engineering and fine metal craftsmanship combine strength with good looks and versatility in a full array of accessory furniture for streamlining plant operation. You'll find these, too, in Catalog 7001, Mail coupon for complete information.



Royal Dealers, coast to coast, will be glad to assist you in planning



#### ROYAL VERTI-FILE

Compared with conventional drawertype files, Royal Verti-File takes only 1/2, the floor space, holds more than twice as much, saves 75% in equipment cost, provides complete visibility. Approved by the Management Committee on Cost Reduction and Efficiency.

#### ROYAL METAL MANUFACTURING COMPANY

175 N. Michigan Ave., Chicago 1, Illinois, Dept. 32-G

- Please send me free Catalog No. 7001
- I would like to have folder on Royal Verti-File.

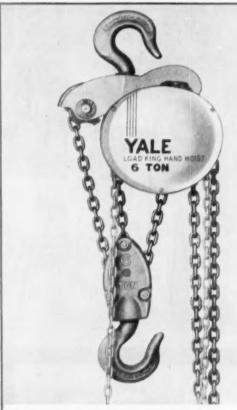
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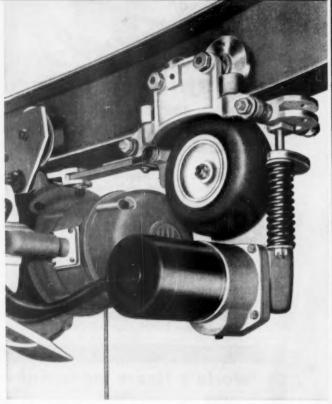
Company\_\_\_\_\_\_Street\_\_\_\_\_

City & State\_\_\_\_

For More Information Circle No. 362 on Inquiry Card-Page 17



New! Yale High-Capacity Load King Hand Hoists now lift loads up to 12 tons. Like famous Yale Low-Capacity Load Kings, these new Yale hoists feature high mechanical efficiency for greater ease of operation; automatic brake and release action; extra rugged, lightweight construction. Capacities: ½ to 12 tons.



New! Yale Rail King Motor-Driven Tractor Trolley pulls any hand or electric hoist with load capacity up to 3 tons. Features: operates on any standard or special track; adjustable acceleration and de-acceleration for each load condition; accurate inching control; application in any type of suspension.

WORLD'S MOST COMPLETE LINE OF HOISTS—
NOW EXPANDED EVEN FURTHER
TO MEET INDUSTRY'S LIFTING NEEDS

New Yale Hoists, New Yale Trolleys Increase Overhead Handling Efficiency



Yale Cable King Electric Hoist—the only air-cooled hoist in the world. Ideal for continuous heavy-duty lifting. All types of suspensions. Capacities: ¼ to 15 tons.



Yale Load King Electric Hoist with pushbutton control saves handling time anywhere. Adaptable to lug, hook or trolley suspension. Capacities: ¼ to 1½ tons.



Yale Midget King Electric Hoist for economical operation. Up-down bar grip control for easy load spotting. Twobrake safety. Capacities: ½ to 2 tons.



Yale Pul-Lift makes any lifting or pulling job easy. Operates at any angle. Self-actuating load brake. Ratchet handle action. Capacities: % to 15 tons.



Yale Spur-Geared Chain Hoist with high mechanical efficiency, speeds load lifting and spotting. Instant, safe-hold braking action. Capacities: ¼ to 40 tons.



Yale Winches—designed for wall, ceiling or foot mounting—include all famous exclusive features of Yale Cable King Hoists. Capacities: ¼ to 3 tons.

Keeping pace with the sharply increased needs of expanding industry for more efficient, reliable overhead handling equipment is a major Yale responsibility—carried out through Yale's firm policy of constant research, advanced engineering and quality control manufacturing.

Now—in response to an urgent need of progressive management seeking to meet today's record production goals—Yale adds *new* hoists and trolleys to its line of hand and electric hoists, winches and trolleys...already the most complete and versatile line in the world.

As with all Yale hoisting equipment, new Yale

High-Capacity Load King Hand Hoists and the new Yale Rail King Motor-Driven Tractor Trolley combine precision operation with job-fitted application for maximum safety and efficiency.

Your local Yale Hoist Distributor will give you full details about new Yale equipment as well as the complete Yale line, and is qualified to recommend the Yale hoist or Yale hoist system that will satisfy your lifting needs exactly. Call him today for prompt attention to your specific problem. He's listed in the yellow pages of your telephone directory, under Hoists. Or write The Yale & Towne Mfg. Co., Phila. 15, Pa. Dept. A-256.

#### YALE\*

**INDUSTRIAL LIFT TRUCKS AND HOISTS** 

\*000 11 0 847 000

For More Information Circle No. 363 on Inquiry Card-Page 17

#### What other belting in your mill can meet all these drive conditions?

#### DRIVES WHERE YOU NEED MORE CAPACITY

Tannate with its high overload capacity is the economical way to get more production from your present equipment and, you'll make savings in power costs, too. It's the glove-like grip and higher tensile strength of Tannate that enables it to outproduce and outlast the ordinary belt. Try it and see for

#### DRIVES SUBJECTED TO HEAVY SHOCK LOADS

Tannate is resilient, absorbs heavy shock loads and acts as a cushion between motor and machine. This extra strength, built into Tannate flat leather belts, means longer service life-less maintenance, too.

#### HIGH SPEED DRIVES

where belt speeds as high as 6000 f.p.m. are required. Tannate can do a good job because it is comparatively light in weightconsequently centrifugal force has less effect—the power transmitting efficiency of Tannate is maintained.

#### **MULTIPLE PULLEY DRIVES**

Tannate is flexible-can take the twisting and turning of serpentine drives, mule drives and quarter turn drives. In addition, l'annate has the necessary high coefficient of friction (on both sides of the belt) to maintain high operating efficiency on the tough drives.

#### SHORT CENTER AS WELL AS LONG CENTER DRIVES

The superiority of Tannate on long center drives is almost taken for granted by many plant engineers today—but don't overlook the advantages of Tannate on short center drives, too. While the Tannate short center drive usually does require a tensioncontrolling motor base for best performance, it is equally true that this simple sturdy drive will be more efficient-do a better job, require less maintenance and last much longer than ordinary short center drives.

#### What is Tannate?

Tannate is the trade name for the special tanned leather developed and produced by J. E. Rhoads and Sons especially for the manufacture of flat leather belting. It combines exceptional grip, pliability, elasticity, strength, and durability. It will resist moisture, mineral oils and the fumes of most acids-will withstand high temperatures (212°F. dry, 170°F. moist). For specifications of Tannate flat leather belting and Rhoads' other leather products, write J. E. Rhoads and Sons, 2100 W. 11th Street, Wilmington 99, Delaware.

WILMINGTON NEW YORK CHICAGO

RHOADS INDUSTRIAL LEATHERS

ATLANTA

For More Information Circle No. 364 on Inquiry Card-Page 17

#### Capital Equipment Purchases

(Continued from page 95)

Unit cost savings are computed by dividing annual savings (line 8 of Exhibit I) by the number of planned units to be produced (line 12). Thus:

For Equipment A:

\$15,000

100,000 = 15¢ per unit

For Equipment B:

\$11,000

100,000 = 11¢ per unit

Unit cost savings is not applicable to all equipment purchases. The proposed equipment may contribute to lower cost of several end products or perhaps simply lower the total overhead cost of the company. In calculating unit cost savings, great care should be exercised in the selection of the proper unit output base, if any is

(5) Annual Return introduces the concept of alternative uses of space and facilities devoted to the operation being analyzed. It should be recognized that each of the possible methods of operation being analyzed consume specific amounts of space on which the concern incurs costs for interest, taxes, maintenance, builddepreciation, heat, light, power, etc. Normally, each operation in the concern in the long run should cover its share of these general overhead expenses, which are typically allocated to the operation on some standard basis, such as: a percentage of direct labor dollars, a monthly charge per square foot of space, a percentage of total investment,

Annual return measures the total saving in the long run cost of the analyzed operation, assuming full space utilization and assuming that each operation should carry its full share of the general overhead cost of the concern. The analyst must always check to insure that the allocated overhead truly represents a fair apportionment of general overhead to the operation, i.e., that the allocation basis and percentage are reasonable. If there are large areas of idle plant or if overhead alloca-

(Please turn to page 306)

# Simple Arithmetic... Type 302, Sheet Base Price 5000 cents per lb. Type 430, Sheet Base Price 39, 25 cents per lb. Saving 10.75 cents per lb. in Stainless SHEET Costs!

#### Now you can SAVE \$215 per ton in base price alone!

Many designers and fabricators who are currently using Type 302 stainless can, in numerous applications, specify Type 430 straight chromium stainless and take advantage of the 103/4 cents per pound difference in base price. Some of our customers are already saving more than \$215 per ton using our 430 MicroRold stainless sheet.

The steel industry estimates that 50% of all stainless sheet applications could satisfactorily employ Type 430, the least

expensive of all stainless grades, as an economical and practical material. When properly applied, Type 430 has all the desirable qualities of beauty, corrosion resistance, strength, long life and low maintenance that no other, material, except stainless, can offer.

We are currently producing our MicroRold Type 430 sheets up to 48" wide in thicknesses .005" to .109" with 2B or 2D finishes; and in thicknesses .010" to .109" in No. 3, 4 and 7 finishes.

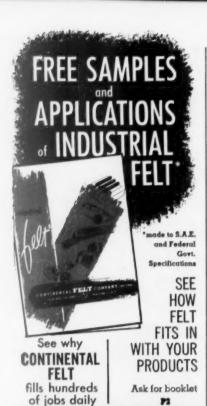
Send for Your copy, "Care and Use of 430 MicroRold Stainless Steel"

Washington Steel Corporation



6-N WOODLAND AVENUE, WASHINGTON, PA.

For More Information Circle No. 365 on Inquiry Card-Page 17



For More Information Circle No. 381 on Inquiry Card-Page 17

22 26 WEST 15th STREET

CONTINENTAL FELT COMPANY, INC LAS

NEW YORK 11. N. Y

#### Capital Equipment Purchases

(Continued from page 304)

tions are not properly determined, Annual return has little meaning.

Annual return in the present example is \$35,000 for Equipment A and \$31,000 for Equipment B. (See line 11 of Exhibit I.)

(6) Return on Investment is a measure of the percentage of the investment in the operation returned to the business through cost savings each year. Whenever possible, all new cash and noncash commitments in the process should be considered in the investment base. (See lines 13 and 14 of Exhibit I.) In some cases the cost of the non-cash investments (line 14) may be difficult to ascertain. For this reason two common methods of calculating return on investment are frequently encountered. These are illustrated below.

The first method calculates return on investment as the ratio of annual savings (line 8 of Exhibit

I) to total new investment in the process (line 15). By this method we find:

For Equipment A:

\$35,000

 $\frac{1}{$60,000} = 58.4\%$ 

For Equipment B:

\$31,000  $\overline{\$40,000} = 77.5\%$ 

This method of computing return on investment indicates the long run relationship between the total new capital to be invested in the process and the long run average yearly total cost saving, assuming that each unit of the total operation should absorb its fair share of general overhead. In situations in which space is quite limited, it becomes extremely important that the use of each increment of space be justified by the return which its utilization will yield the concern. Method 1 is generally the most desirable way to consider in-plant capital acquisitions or replacements, but in some cases it may be extremely difficult to compute the cost of previously owned incremental fa-(Please turn to page 310)

a part of your future

WERNER Aluminum EXTRUSIONS perform critical functions, achieve the high standards required for maximum product and production efficiency. Leading manufacturers of appliances, trailers, curtain walls, aircraft, etc. depend on WERNER EXTRUSIONS for precision tolerances, consistent quality control and delivery to meet their production schedule. If your present or future product requirements include extruded aluminum parts—contact WERNER Aluminum. Sales representatives located in principal cities.





For More Information Circle No. 415 on Inquiry Card-Page

plastics parts tooling

got you
BEHIND
THE



G-E's dependable

quality tooling

can get you

"out from behind"



"You can find the right man for the job, but unless you give him the right tools to work with, he'll never turn out a good product."

The General Electric Plastics Department has expressed this sound philosophy with a substantial investment in the very best facilities, equipment and tool-making talent, in order to produce the finest plastics molding precision tools, and to produce them "on schedule."

If tooling is the big reason for the poor quality or late delivery of the plastics parts you buy, get "out from behind" that 8-ball. Turn to the specialized skills of the General Electric Plastics Department, where the art and science of plastics parts tooling have been refined to the highest degree possible.

Write today to Plastics Department, General Electric Company, Section 6P, Decatur, Ill.

Progress Is Our Most Important Product

GENERAL



ELECTRIC

For More Information Circle No. 368 on Inquiry Card-Page 17

## NEW

#### Data-Readout Counter

Provides 100,000

Distinct Circuit Arrangements



#### FUNCTIONS

Analog to Digital Conversion Serial or Parallel Circuit Transmission Continuous or On Demand Electrical Readout Continuous Visual Readout Visual and Electrical Data Storage Predetermining Repeat Predetermining Sequential Programming Veeder-Root's new series of Data Readout Counters combines visual indication with electrical readout for remote indication, recording, and controlling applications. *Electrically* or *mechanically* driven and provided with *manual* or *electric* reset, these counters present a positive display of accumulated totals and automatically create specific control circuit contact closures for each number visually displayed. Each instrument, with its five figure capacity, provides 100,000 distinct circuit arrangements which lend themselves to the most exacting control and transmission requirements. The counters are compatible with standard data processing equipment and offer a wide variety of applications in the industrial control and data processing fields.



#### **Veeder-Root Inc.**

"THE NAME THAT COUNTS"

Hartford, Conn. • Greenville, S. C. • Chicago • New York • Los Angeles
San Francisco • Montreal • Offices and Agents in Principal Cities

For More Information Circle No. 369 on Inquiry Card-Page 17



**PROBLEM:** To cast these filter plates in one piece  $(26^{\prime\prime} \times 26^{\prime\prime} \text{ sq.})$  with the thickness of the center web held to  $.310^{\prime\prime} \pm .015^{\prime\prime}$ . Deviations from this tolerance would result in improper seating of filter cloths. Normal sand casting methods could not produce the required accuracy.

DRAG

Machining finish formerly required on these surfaces now eliminated.

**SOLUTION:** To secure the precise dimensions required for the inner "web", Cooper Alloy placed a special shell core *inside a greensand mold*. When closed, space between the shells

provides precisely uniform thickness, and surface of shell assures a superior finish.

## ±.015" HELD in stainless steel filter plate web

Costly milling operation now eliminated by Cooper Alloy precise-dimension casting. Here's how it cut Tennessee Eastman's costs...

Today, thanks to Cooper Alloy "Advanced Casting Know-How", this piece, using one of the largest shell cores ever made, is being successfully produced in quantity by Cooper Alloy. It saves Tennessee Eastman hours of machining time and thousands of dollars in finished-piece costs.

Cooper Alloy, a specialist in stainless steel for 35 years, is still a pioneer in the development and application of new techniques for handling this tricky metal. Next time you have a tough problem, and there's a chance that a unique casting method can save time and money, talk to Cooper Alloy.



#### COOPER ( ALLOY

Corporation . Hillside, New Jersey

FOUNDRY PRODUCTS DIVISION

THIRTY-FIVE YEARS OF STAINLESS STEEL PIONEERING

# Here are the LOW-COST answers to YOUR labeling problems!

whatever you need...
AVERY LABELING will
save you time and money



Avery pressure-sensitive Labeling offers you a new approach... an easier and better solution... wherever you need to code, identify, instruct, warn, route or inspect. It's the modern low-cost method of labeling to do the job quickly and efficiently. Avery Labels can be designed and produced in the exact size, shape and color you need...individually diecut on sheets or rolls for manual or automatic labeling!

#### 1. NO MOISTENING-EASY TO APPLY

One simple motion—a fingertip pressure—and Avery Labels are on in an instant—without moistening! No waste motions in handling or sorting loose labels—no messy gluing or wetting.

#### 2. STICKS TO ANY CLEAN, SMOOTH SURFACE

Metal, plastic, glass, cellophane, metallic paper, pliofilm, polyethylene, ceramics, wood . . and many other surfaces . . . are being easily and quickly labeled every day with Avery pressure-sensitive Labels.

#### 3. NEAT, SMART APPEARANCE

Will not pop, peel or curl even under extremes of temperature and humidity—even stay neat and attractive with rough handling.

#### 4. SPEEDS PRODUCTION

In all industries . . . in hundreds of ways . . . Avery Labels are saving time, labor and money every day. Avery Labeling is geared to your own type of operation—either fast, production line speed or intermittent labeling.

#### S. THEY'RE PRICED RIGHT

In terms of economy and improvement, actual case histories prove that Avery Labeling is the most economical method you can use in your production operations.

# AVERY ADMESIVE LABEL CORP., Div. 130 117 Liberty St., New York 6 • 608 S. Dearborn St., Chicago 5 • 1616 S. California Ave., Monrov a. Calif. • In Canada, 48 Haas Road, Toronto 15. Ontario • Offices in Other Principal Cities. I am interested in labeling Please send samples and information Have the Avery man call Name Company Address City Zone State Write for FREE sample labels, case histories

For More Information Circle No. 371 on Inquiry Card-Page 17

#### Capital Equipment Purchases

(Continued from page 306)

cilities required by the new process. In these cases, Method 2 must be utilized.

#### Calculating Return on Investment (2)

The second method compares the annual savings induced by the new equipment, including the recovery of its own cost (line 8 of Exhibit I), with the cash outlay necessary to obtain these savings (line 13). Using this method we find:

For Equipment A:  $\frac{\$15,000}{\$50,000} = 30\%$ For Equipment B:

 $\frac{\$11,000}{\$20,000} = 55\%$ 

Method 2 is applicable to all capital acquisitions for operations against which space charge allocations would be inappropriate, e.g., automobiles, trucks, or mobile equipment not garaged on the premises, certain office or desk equipment, test equipment for laboratories, etc. Sometimes, where information on facilities costs is not available, it is necessary to use Method 2 for operations against which overhead should normally be charged. In these cases the question of adequacy of return on incremental space utilized must be weighed as an intangible factor.

What is an adequate return on investment? Each concern will have to establish its own standards for acceptable return on various types of equipment. A 30% (or better) return before taxes seems to be widely accepted as the standard for middle risk situations. High risk investments normally call for a 50% (or greater) return, with estimated returns of 100% or more required in some extraordinary cases. On the other hand, many investments in stable business and technological situations require only a 20% return before taxes. The return percentage established as acceptable by a concern for various risk situations is normally a policy

(Please turn to page 314)
For More Information Circle No. 372
on Inquiry Card—Page 17→
PURCHASING



TEXAS NATIONAL BANK BUILDING — Serves as headquarters for the bank and Continental Oil Company, contains 21 floors of office space, has shopping areas on first floor. Sprinkler system serves basement, subbasement and first floor; uses 5,242 ft. of SPANG Pipe feeding 801 sprinkler heads.



MEDICAL ARTS PARKING GARAGE—This 9-story, 320 car facility has horizontal-vertical elevators which deliver cars automatically in 75 seconds. Sprinkler system protects basement, contains 1,677 ft. of 1" to 5" SPANG Steel Pipe serving 171 sprinkler heads.

TEN-TEN PARKING GARAGE—The south's largest public parking facility has 1500-car capacity, is of ramp-type construction with heliport on the roof. Sprinkler system for sub-basement, basement and first floor shops contains 18,911 ft. of SPANG Steel Pipe feeding 1,507 sprinkler heads.



BANK OF THE SOUTHWEST BUILDING— Houston's newest and largest office building is 24 stories high, contains the largest single banking room in the nation. Sprinkler system for basement, sub-basement and first floor uses 17,000 ft. of SPANG Pipe, has 1,111 sprinkler heads.



#### FIRE PROTECTION WITH SPANS STEEL PIPE

Down Texas way, sprinkler systems must pass the rigid requirements of the Texas Fire Commission. Commission inspectors test the system at 200-pound hydrostatic pressure for two hours. Each system must provide 15 psi residual pressure for 25 gpm water delivery at the top line sprinkler.

Naturally, the Spang Steel Pipe sprinkler systems, installed in these four new Houston buildings, passed these tests and more than met the National Board of Fire Underwriter requirements . . . because Spang Pipe is manufactured under strict quality-

control conditions, is inspected and tested before shipping to assure a top-quality product.

In every type installation, Spang Steel Pipe will give you top-quality performance. Try it and see for yourself. For top-quality service, contact your local Spang Distributor.

SPANG CW STEEL PIPE

#### **SPANG-CHALFANT**

DIVISION OF THE NATIONAL SUPPLY COMPANY General Sales Offices: Two Goteway Center, Pittsburgh, P.a. District Sales Offices: Atlanta, Basson, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis



"This set of Dayton Cog-Belts" has been on our 24" gyrasphere crusher for over two years — running 12 hours a day, 7 days a week. They seem to thrive on grit and dust that has torn the covers off other belts in a day.

"We were surprised to find," continues Dom White, Chief Storekeeper, "that Dayton Cog-Belts kick out dust that used to collect in the V-grooves thereby ending the cause of uneven wear and thrown belts." Walt Berlo (right), of Dayton, first suggested the change to Dayton Cog-Belts that has proved so successful at The Diamond Portland Cement Co.

Dayton has the right belt for every drive application and a Preventive Maintenance Program which ends high belt replacement cost due to unexpected belt failure. With a Preventive Maintenance Survey your Plant Engineer can plan his work intelligently and—at the same time—cut maintenance costs.

# Abrasive Dust Problem Ended by Dayton Cog-Belts\*...

Saving \$840 in V-Belts Alone for The Diamond Portland Cement Co., Middle Branch, Ohio

"Severe abrasive conditions were making belt replacement a real headache at our primary crusher site," says the Chief Storekeeper for The Diamond Portland Cement Co. "Every time I'd see a tag on the crusher, my reaction would be 'What, another set of belts?'

"We found grit and abrasive dust from our 24" gyrasphere crusher and from the surrounding atmosphere was tearing the fabric off ordinary belts . . . cutting the reinforcing cords . . and wedging in the belt groove — eventually causing the sheave to throw the belt. Some belts wore out in only 24 hours.

"The cost of keeping a drive on the crusher was discouraging. In 1953 we spent \$255 on belts alone — as well as having the crusher down for belt replacement on 8 different occasions during which production stopped.

"A lot of people had offered to help us, but none of their solutions worked. When the Dayton representative called, we were skeptical. But, we had spent so much time and money trying to find a solution that we had to give him a chance.

"He asked us to try Dayton Cog-Belts. We did, and they were an immediate success. By eliminating our basic problem . . . the build-up of abrasive grit between the groove and the

belt . . . we eliminated all the other problems we thought we had! What's more, we've saved about \$840 while doing it!

"For, the special cog design doesn't allow abrasive particles to build up in the belt grooves. Faster than the dust can collect, the openings in the Dayton Cog-Belt kick it out. With no dust collecting, there's nothing to distort the shape of the belt or force it to fly out of the sheave.

"Even more important is the fact that Cog-Belts practically gobble up abrasive dust. With a fabric covered belt, abrasive material which was forced into the surface would wear and cut the fabric, causing it to tear and split. The Cog-Belt has no fabric on the driving surface — just bare rubber. Instead of abrading the Cog-Belt, clinker, dust or iron grit becomes imbedded in the uncovered rubber and stays there dormant as an integral and harmless part of the belt.

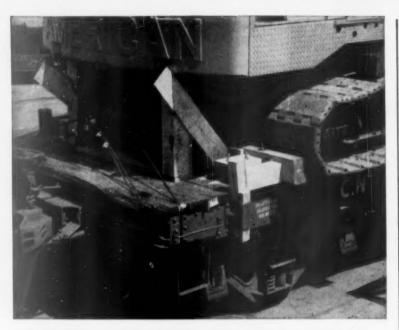
"These Cog-Belts have been running unattended for over 2 years—operating 12 hours a day, 7 days a week," concludes Mr. White. "Their positive drive, extremely uniform wear pattern, and durability, add up to the most trouble-free operation we've experienced. And, this drive was once a major trouble spot."

For more information and help in solving your power transmission problems, see "Belting" in the Yellow Pages for the name of your nearest Dayton distributor. Or, write The Dayton Rubber Co., Dayton 1, Ohio.

#### Daytom Rubber

World's Largest Manufacturer of V-Belts

Dayton Rubber Company, Industrial Replacement Division, Dayton 1, Ohio



#### HEAVY MACHINE SHIPPED SAFELY, CROSBY CLIPS PREVENT SHIFTING

To be sure that its heavy products won't shift or break loose during shipment, this manufacturer specifies that only genuine Crosby\* Wire Rope Clips be used to secure equipment to flatcars. Experience has proved that this clip, with the famous Red U-Bolt\*, never loses its grip, never fails-even when the load is subjected to severe transit and switching shocks!

In every phase of every industry, from mining to manufacturing, wherever wire rope must be secured quickly and with 100% holding power, you'll find Crosby Clips first choice. The easily recognized Red U-Bolt-standard of all industries-is used everywhere. It's the work-proved symbol of safe, long life performance.

Wherever you use wire rope, you'll know it's secured safely if it's secured with genuine Crosby Clips-the only clip that offers a complete range of sizes to fit every wire rope from 1/8" to 3" in diameter. Leading industrial distributors and mill supply houses carry America's number one clip for wire rope! They have free, fully descriptive catalogs on a complete fittings lineor write direct:

#### "MISSING LINK" SAFEST

"Less expensive, but stronger than welding," that's what safety and cost conscious materials handling experts say about the genuine, drop forged Crosby-Laughlin\* Missing Link\*! This original, strongest split connecting link is safer than cold shuts or cast links -makes possible fast assembly of



slings, yet protects men and materials! Because it's drop forged, then heat treated, the Missing Link is actually stronger than proof coil chain! Every link is precision matched under tons of pressure. A complete range of sizes from 136" to 138" is available from from 76 to distributors everywhere. \*Registered Trademark

World's Most Complete Line of Fittings For Wire Rope and Chain

FORT WAYNE 1, INDIANA

For More Information Circle No. 374 on Inquiry Card-Page 17

For More Information Circle No. 373

on Inquiry Card—Page 17

#### Capital Equipment Purchases

(Continued from page 310)

matter decided on the basis of the pooled judgment of the various top management groups.

#### Which Equipment Should Be Bought?

The above cost analysis may now be summarized (See Exhibit II). Assuming the proposed investment to be a middle risk situation, either Equipment A or Equipment B would appear to be an attractive investment, regardless of the unamortized value of the old equipment. The new equipment savings are in addition to any cost savings the old equipment may have realized relative to its predecessor.

It should be noted that cash payback period becomes relatively more important as the cash situation is more stringent, and return on investment (Method 1) is more important as space limitations are encountered.

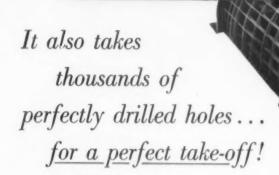
Is Equipment A worth its additional cash cost of \$30,000 and/or its additional total cost of \$20,000 relative to B? This, in modified form, is a problem that confronts purchasing men daily. Using the tools of analysis, some indications of the incremental values of A may be obtained. Exhibit III compares the cost of operating with A vs. B equipment.

It can be seen that the additional investment in A yields a low (13.3% to 20%) return on investment, and A requires a relatively long cash payback period (3 years). One would conclude that, unless the investment were extremely low risk, the incremental investment in A would not be worth while, and that B should be purchased.

#### Some General Comments

The cost analysis system presented here is applicable to equipment replacement problems, to new equipment decisions in which alternate facilities are available, and to the "make or buy" question when making would require capital facilities. In the latter case one merely inserts the purchase

(Please turn to page 318)



That's why MARTIN depends upon the quality performance of

#### NEW YORK TWIST DRILLS

By producing thousands upon thousands of clean, concentric holes without burrs — and more holes for every dollar, New York Twist Drills play an important part in the construction of the sleek new XP6M-1 SeaMaster and other Martin aircraft. Their own performance tests prove New York Drills are straight and true, with accurate points and extra smooth flutes.

We've been a major supplier of twist drills to this famous company for a number of years, now. Among the New York drills used in the Martin plants are our aircraft extension types, 6" and 12", adapter drills, stack drills, drills for stainless steel, 75 ST aluminum and titanium.

You can depend upon New York drills to do a quality job and save at least 20% on your twist drill bill, too. Other featured types are Knockout drills for aluminum, stainless steel and titanium rivets; Types A, B & C twist drills — National Aircraft Standards Specifications.

Write us now for catalog, technical manual and net prices



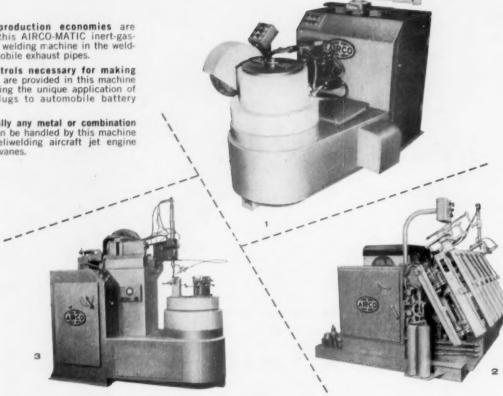
#### NEW YORK TWIST DRILL COMPANY, INC.

EASTERN HEADQUARTERS: 278 LAFAYETTE STREET, NEW YORK 12, N. Y. MIDWEST HEADQUARTERS: 30-A NORTH CLINTON STREET, CHICAGO 6, ILL.

Many production economies are offered by this AIRCO-MATIC inert-gasshielded arc welding machine in the welding of automobile exhaust pipes.

All controls necessary for making sound welds are provided in this machine for Heliwelding the unique application of aluminum lugs to automobile battery

Practically any metal or combination of metals can be handled by this machine used for Heliwelding aircraft jet engine turbine exit vanes.



#### available to you.

#### A completely packaged "welding-and-engineering" service

Airco's Machine Welding Department custom engineers automatic welding operations to your product design-accepts all responsibility for: welding processes, machine design, production procedures, installation, operating efficiency!

Airco's Machine Welding Department gives you practical guidance and assistance when you are considering semi-automatic or automatic welding operations in your plant or shop. The 36 projects already completed comprise a wide range of automatic welding

No matter how large or small the job, Airco engineers are prepared to help you evaluate the various welding processes, select the most suitable machines and equipment for your job and develop efficient production-line procedures.

You get a completely engineered "package" from one source. You avoid cost of process studies, the confusion of dealing with numerous suppliers of component parts, the time wasted in working the "bugs" out of your automatic welding installation. Airco's Machine Welding Department co-ordinates processes, procedures and machines for smooth efficient operation. They will design, construct and install jigs and fixtures that will meet your manufacturing specifications at the lowest possible cost.

Learn how you can solve your production problems with a custom engineered automatic welding package at reduced cost. Write to: J. H. Berryman, Machine Welding Department, Air Reduction Sales Company, (address below), for complete information.

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A division of Air Reduction Company, Incorporated 150 East 42nd Street, New York 17, N. Y.

On the west coast -Air Reduction Pacific Company Internationally -

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Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — industrial gases, welding and cutting equipment, and acetylenic chemicals \* PURECO — carbon dioxide — gaseous, liquid, solid ("DRY-ICE") \* OHIO — medical gases and hospital equipment \* NATIONAL CARBIDE — pipeline acetylene and calcium carbide \* COLTON — polyvinyl acetale, alcholos, and other synthetic resins.

### 10 // USS Gerrard AUTOMATIC STRAPPING MACHINE

Fully Tested, Tried and Proven



Where automation is important to your packaging and bundling problems, the USS Gerrard Model 12 Automatic Round Steel Strapping Machine is the answer to your needs. This machine has thoroughly proved its efficiency and trouble-free operation. Here, briefly, are some of its many advantages:

LOW COST—This is one of the lowest-cost autometic strapping machines on the market today.

COMPACT-Requires only 111/2 sq. ft. of floor space. Table height, 81". Weight (approx.), 1500 lbs.

SPEED-Up to 24 ties per minute.

TWO SIZES—Either machine will handle packages as small as 8" wide by 2" high. The larger will handle packages as large as 26" wide by 20" high.

EASY TO OPERATE—Utilizes USS Gerrard Round Steel Strapping from 14 through 18 gauge. Easy to thread and operate.

LOW MAINTENANCE—One-shot, built-in lubrication system and compact, rugged, simple construction mean minimum service and maintenance.

TENSION—Can be predetermined, and when set is uniformly maintained on all packages regardless of size or weight.

SINGLE POWER SOURCE—All functions are mechanically controlled and interlocked. Simply plug in and run.

PACKAGES which vary in size and shape can be strapped without adjustment to machine.

COMPRESSION DEVICE for pre-compressing packages or bundles can be supplied as optional equipment.

QUIET OPERATION-Fully engineered to eliminate noise and vibration.

For more complete details, contact your USS Gerrard sales representative. Also mail coupon for folder and the Gerrard Blue Book of Packaging. This contains full information on all USS Gerrard Machines and round and flat strapping.

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GENERAL OFFICES: CHICAGO, ILLINOIS



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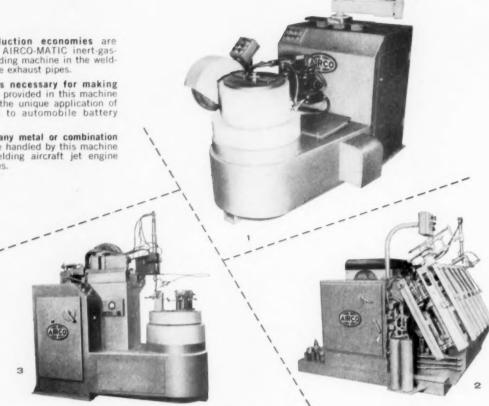
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State

Many production economies are offered by this AIRCO-MATIC inert-gas-shielded arc welding machine in the welding of automobile exhaust pipes.

2 All controls necessary for making sound welds are provided in this machine for Heliwelding the unique application of aluminum lugs to automobile battery cables.

Practically any metal or combination of metals can be handled by this machine used for Heliwelding aircraft jet engine turbine exit vanes.



#### available to you

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Airco's Machine Welding Department custom engineers automatic welding operations to your product design-accepts all responsibility for: welding processes, machine design, production procedures, installation, operating efficiency!

Airco's Machine Welding Department gives you practical guidance and assistance when you are considering semi-automatic or automatic welding operations in your plant or shop. The 36 projects already completed comprise a wide range of automatic welding applications.

No matter how large or small the job, Airco engineers are prepared to help you evaluate the various welding processes, select the most suitable machines and equipment for your job and develop efficient production-line procedures.

You get a completely engineered "package" from one source. You avoid cost of process studies, the

confusion of dealing with numerous suppliers of component parts, the time wasted in working the "bugs" out of your automatic welding installation. Airco's Machine Welding Department co-ordinates processes, procedures and machines for smooth efficient operation. They will design, construct and install jigs and fixtures that will meet your manufacturing specifications at the lowest possible cost.

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On the west coast — Air Reduction Pacific Company Internationally -

Airco Company International

In Cuba — Cuban Air Products Corporation

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Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — industrial gases, welding and cutting equipment, and acetylenic chemicals \*\* PURECO — carbon dioxide — gaseous, Ilquid, solid ("DR\*-ICE") \*\* OHIO — medical gases and hospital equipment \*\* NATIONAL CARBIDE — pipeline acetylene and calcium carbide \*\* COLTON — polyvinyl acetate, alcohols, and other synthatic resins.

# WWW. STRAPPING MACHINE

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Where automation is important to your packaging and bundling problems, the USS Gerrard Model 12 Automatic Round Steel Strapping Machine is the answer to your needs. This machine has thoroughly proved its efficiency and trouble-free operation. Here, briefly, are some of its many advantages:

LOW COST—This is one of the lowest-cost automatic strapping machines on the market today.

COMPACT-Requires only  $11\frac{1}{2}$  sq. ft. of floor space. Table height, 31". Weight (approx.), 1500 lbs.

SPEED-Up to 24 ties per minute.

TWO SIZES—Either machine will handle packages as small as 8" wide by 2" high. The larger will handle packages as large as 26" wide by 20" high.

EASY TO OPERATE—Utilizes USS Gerrard Round Steel Strapping from 14 through 18 gauge. Easy to thread and operate.

LOW MAINTENANCE—One-shot, built-in lubrication system and compact, rugged, simple construction mean minimum service and maintenance.

TENSION—Can be predetermined, and when set is uniformly maintained on all packages regardless of size or weight.

SINGLE POWER SOURCE—All functions are mechanically controlled and interlocked. Simply plug in and run.

PACKAGES which vary in size and shape can be strapped without adjustment to machine.

COMPRESSION DEVICE for pre-compressing packages or bundles can be supplied as optional equipment.

QUIET OPERATION—Fully engineered to eliminate noise and vibration.

For more complete details, contact your USS Gerrard sales representative. Also mail coupon for folder and the Gerrard Blue Book of Packaging. This contains full information on all USS Gerrard Machines and round and flat strapping.

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Company

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For More Information Circle No. 377 on Inquiry Card-Page 17

# TOUGHER ROOFS... COOLER BUILDINGS



You add years to the life of your plant roofs, reduce costly maintenance, when you coat them with an asphalt-aluminum roof paint or coating. Put on a tough, weather resistant aluminum shield that blocks damaging moisture, reflects the sun's heat.

A bright aluminum coating on the roof can keep a building as much as 15° cooler in the summer.

Guard your roof against weather, cut roof upkeep and air conditioning costs with an asphalt-aluminum paint or coating made with Reynolds Aluminum Pigment. Look for the Warranty Seal—it means at least two pounds of pure aluminum pigment per gallon, and an approved vehicle.

If you employ a contractor be sure he's reliable, and ask him to use aluminum roof paint or coating with Warranty Seal assurance.

#### Guard Against Rust, Corrosion with Aluminum Paint

Metals and masonry last longer, look better with less maintenance when coated with aluminum paint made with Reynolds Aluminum Pigment. Even one coat protects against rust and corrosion. Use it to give your plant the modern look of aluminum—inside and out.



By the makers of Reynolds Wrap
See "CIRCUS BOY", Reynolds exciting dramatic series, Sundays on NBC-TV

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are made with	Name
REYNOLOS 🕮 ALUMINUM	Company
PIGMENT	Address
S Leave Comments	City Zone_ State

For More Information Circle No. 378 on Inquiry Card-Page 17

#### Capital Equipment Purchases

(Continued from page 314)

price of the part for total direct cost, sub-total, and total cost as one of the possible alternatives. The rest of the analysis proceeds as before.

The indicators are, of course, aids to management, and are no substitutes for sound judgment. They do, however, offer management some guides and check points to consider when analyzing capital purchases.

#### Intangibles

It has been noted in the introductory paragraphs that intangible factors may well reverse decisions which, from a financial viewpoint alone, may be extremely attractive or, conversely, very unwise. Having made a complete financial analysis as demonstrated, one is enabled to give adequate attention to all pertinent intangibles which might affect an investment.

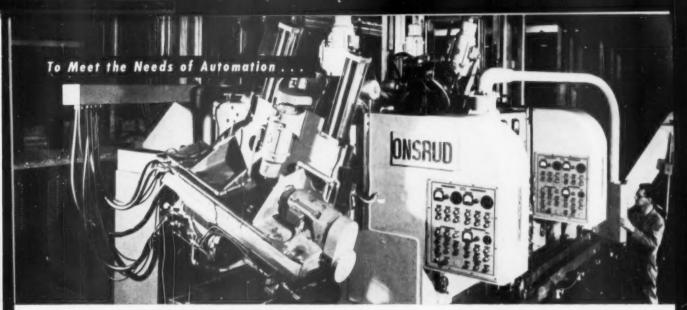
While it is obviously impossible to present an exhaustive list of intangibles in the limited space of this article, a general check list is provided in Exhibit IV. The headings and illustrations in that tabulation indicate the variety of factors to be considered, many of which are often pertinent to a particular situation.

#### The Decision

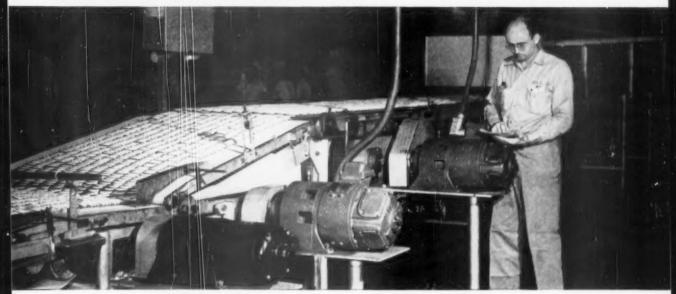
There is no automatic or completely foolproof way to make capital investment decisions. Having carefully analyzed both the cost factors and the pertinent intangibles, management judgment is required to weigh and relate the various elements in this complex decision. With the proper analysis approach and a few usable guides, it is most likely that this judgment will be properly exercised.

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For More Information Circle No. 379 on Inquiry Card—Page 17→ PURCHASING



FROM AUTOMATED MACHINES ...



TO COOKIE CONVEYORS ...

### General Electric Gear-Motors Prove Low-Cost Dependability in Every Industry

Whether you use cranes or conveyors, machine tools or mixers, any of the host of applications employing low-speed drives, G-E gear-motors can save you money.

The more compact construction of the packaged gear-motor design assures speed reduction in a minimum of cubic feet. Units are easy to install, and, because gear-motors are built for specific speed requirements, may be direct-connected, if desired. This means down time can be reduced because inspection and replacement, common with belts, chains and other forms of speed reduction, are not required.

To meet the increasing demand for gear-motors, General Electric has consolidated its gear-motor activities and established a new Gear Motor and Transmission Components Department in Paterson, N.J., devoted solely to the design and manufacture of mechanical power transmissions. For more information, contact your G-E hyparatus Sales Office or nearest gearmotor distributor. Gear Motor and Transmission Components Department, Paterson, New Jersey.

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# BUYS PRECISION IN N B D BRONZE

This is a heavy, 34-inch, machined gear blank. But you name your weight! NBD can handle it in gear blanks, bearings and bushings up to 20,000 lbs. Machined to precise tolerances . . . sizes up to 72-inch diameters. Any size, large or small, guaranteed sound!

NBD specializes in bronze metallurgy; has developed more than 40 special alloys. Completely equipped for shell mold, cast-to-size, centrifugal casting.

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#### NATIONAL BEARING DIVISION

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For More Information Circle No. 385 on Inquiry Card-Page 17

#### **Guided Missile Program**

(Continued from page 99)

information on a handwritten form which is used in typing the formal order.

- (b) An accounting representative assigns an appropriate account number to the handwritten form.
- (c) The allocation of control materials is determined and appended to purchase order work sheets.
- (d) All documents are screened for clarity and accuracy.
- (e) The total value of the purchase is extended.
- (f) A typist inscribes all required information on a purchase order Ditto master, and the latter is proofread.
- (g) Copies of the purchase order are duplicated from the Ditto master and forwarded to all interested parties (including accounts payable, inspection, cost control, government representatives, etc.). A duplicate of the purchase order master is also forwarded to the receiving group within warehousing for eventual recording of actual receipts of material, and the original purchase order master is retained in purchasing department files.

Expediting 'is subsequently done by a team consisting of the buyer, an outside supplier contact, and material expeditor. Purpose of this team is to obtain deliveries of purchased items either on schedule or as close to schedule as possible.

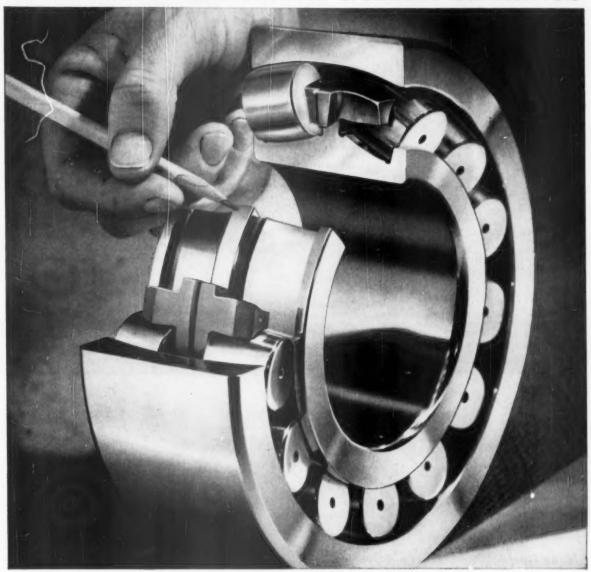
Expeditors who follow material by commodity receive copies of the purchase orders which reflect the schedule, or in the case of a late release, the supplier's alternate promise date. In normal expediting, where sufficient procurement lead time is available, a routine contact with the supplier is made.

Where abnormal conditions exist, the expeditor contacts the supplier to investigate any problems that might interfere with delivery. Our outside supplier contact may then visit the supplier in an attempt to help solve these problems.

Non-delivered parts or materials are placed in a critical cate-

(Please turn to page 324)

#### TORRINGTON SPHERICAL ROLLER BEARINGS



#### "This flange guides the rollers to peak performance!"

The center flange on the inner raceway of the Torrington Spherical Roller Bearing positions the rollers to handle thrust loads. This accurate positioning also assures radial stability of the rollers under heavy loads—even at continuous high speeds and under conditions of misalignment.

This superior design feature is only one of many advantages you get when you specify TORRINGTON. For example, you get the service of TORRINGTON'S experienced engineers, who will help you with design and maintenance problems—or design custom bearings for special applications.

For long, low-maintenance service in heavy-duty applications, order TORRINGTON Spherical Roller Bearings. They're available from stock with either straight or tapered bore, for shaft or adapter mounting.

THE TORRINGTON COMPANY
South Bend 21, Ind.

District offices and distributors in principal cities of
United States and Canada

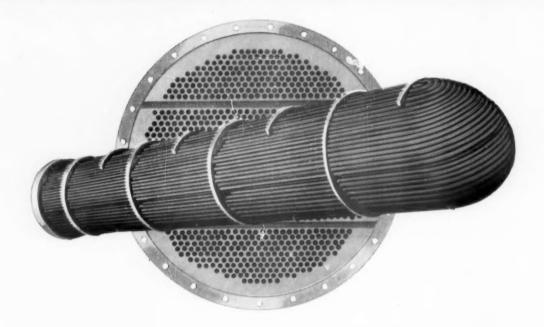
#### TORRINGTON BEARINGS

Spherical Roller • Tapered Roller • Cylindrical Roller
Readle • Ball • Needle Rollers



Specify

### DUAL-GAUGE



First for Lasting Quality-from Mine to Market!

To keep tubes uniformly strong in condensers, feed water heaters, heat exchangers and similar equipment...

#### PHELPS DODGE

#### TUBING!



- **a.** At one or more points in tube length to compensate for thinning on outer portions of return bends.
- b. At points of support.
- c. At tube ends to meet special requirements.

Produced in all standard sizes or manufactured to the particular design requirements of individual customers.

Available in Cupro-Nickel, Red Brass, Aluminum Brass, Admiralty metal and Muntz metal.



# PHELPS DODGE GAPPER PRODUCTS CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Boston, Buffala, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Fort Wayne, Greensboro, N. C., Houston, Jucksonville, Kansas City, Mo., Los Angeles, Memphis, Milwoukee, Minne-apolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, M. T., San Francisco, St. Louis, Seattle, Washington, D. C.



WITH THAT LABEL, it could be any one of a thousand products—all famous because they reduce processing and maintenance costs. It's a rule at Houghton. The technicians who develop these well known products always attack problems from a finished-product viewpoint—your viewpoint. As a result, the lubricants and chemically conceived processing products you buy from Houghton are less costly in the long run; they have proved it in actual tests.

Houghton's research men believe it is what a product does per dollar that counts, not how much it weighs per dollar. That's why you can always depend on Houghton products for top quality and highest processing efficiency.

No matter what's in that Houghton Line drum, it's good!

Paper and Textile
Processing Oils
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Processing Oils

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Philadelphia - Chicago - Delaon - San Hamelsco

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For More Information Circle No. 411 on Inquiry Card-Page 17

#### **Guided Missile Program**

(Continued from page 320)

gory—after which our expediting team may authorize premium transportation if necessary. They expedite the products through our receiving inspection department for issuance to using departments as soon as possible.

From time to time, our purchasing people will invite Rocketdyne customers to join them in visits to suppliers with whom trouble is being experienced.

In the research and development phase of rocket engine manufacturing, "lead-time" problems are continually confronting the buyer. Rocketdyne's customers (the Air Force and Army Ordnance) are interested in obtaining the earliest possible delivery of our product. Purchasing publishes a manual on lead-time for all types of commodities. This manual is distributed to various interested departments.

Data in the lead-time manual are based on actual experience gained over prior years. But in special cases better deliveries can be obtained with the use of premium time and/or premium transportation.

Other manuals, guides, and bulletins which are referred to by our purchasing personnel include:

(a) The Standard Operating Manual (S. O. M.) —This presents the major policies, operating procedures, and organization of North American Aviation, Inc. Although it is issued on a corporate-wide basis by management control general offices, the management control department of each division supplements its text with specific bulletins applying only to the division. Most procedures set forth in the S. O. M. affect our purchasing department.

(b) The Material Division Manual (M. D. M.)—This is issued and maintained by the corporate director of material, and it applies only to the material divisions of North American Aviation. All standard purchasing policies and procedures are set forth in this manual. In addition, it has supplementary bulletins

(Please turn to page 328)

# "Use wire rope? Get this helpful recommendations book!"



"Roebling Wire Rope Recommendations and Catalog" is designed to simplify the selection and ordering of the right wire rope for specific applications whatever they may be.

The best wire rope for top performance on any job shows up at a moment's notice... making the right choice is easy as flipping the tabbed pages of this easy-to-follow, 56-page book. Besides, there's a simple, foolproof, coded ordering system, which identifies the desired size, grade and construction.

May we send you your copy? Mailing the coupon will bring it to you at once. And should the catalog prompt any question on which you'd like further information, field men from your nearest Roebling office or distributor will, of course, assist you...or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

#### ROEBLING

Branch Offices in Principal Cities - Subsidiery of The Colorada Fuel and Iron Corporation

Wire Rope Division
John A. Roebling's Sons Corporation
Trenton 2, New Jersey

Please send me my copy of "Roebling Wire Rope Recommendations and Catalog."

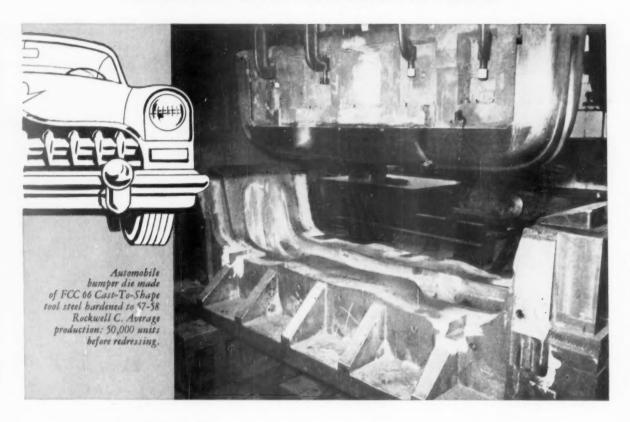
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For More Information Circle No. 386 on Inquiry Card-Page 17

# Try this money-saving method that auto-makers use



### A-L CAST-TO-SHAPE TOOL STEELS

SEND FOR THIS
NEW CATALOG
"FORGING AND
CASTING PRODUCTS"

Contains the latest information on F.C. Air Hardening, Oil Hardening and other Cast-To-Shape Tool Steel Specialties that can save you time and money . . . also Composite Die Sections and Smooth Hammered Forgings in a wide range of tool and stainless steels. Don't wait get your copy NOW.

Write Today

ADDRESS DEPT. P-90

Auto makers, too, are included in the long list of manufacturers enjoying the advantages and economies of A-L. Cast-To-Shape tool steels. By this modern, money-saving method of tool and die making, it is possible to cast even intricate shapes to within an eighth of an inch of finished size. The savings in time and material over that of machining from solid stock are readily apparent.

A-L Cast-To-Shape tool steels are offered in a variety of grades, and are electrically melted to precise laboratory standards. They are remarkably resistant to abrasion and possess great compressive strength. In many cases, they out-perform tools and dies made from solid bars and forgings.

Remember, with A-L Cast-To-Shape tool steels, you buy less steel originally, and you have less machining to do for finish. Ask your A-L representative about them TODAY . . . or write Allegheny Ludlum Steel Corporation, Forging and Casting Division, Wanda and Jarvis Avenues, Detroit 20, Michigan.

For complete MODERN Tooling, call Allegheny Ludlum





# B & 0

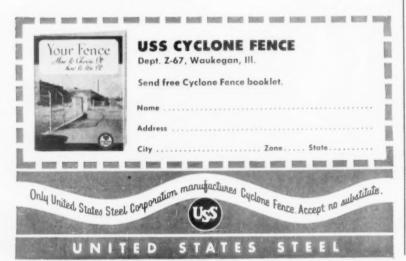
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Ask our man! BALTIMORE & OHIO RAILROAD - BALTIMORE 1, MD. PHONE LExington 9-0400

For More Information Circle No. 388 on Inquiry Card-Page 17



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- It's the largest-selling chain link fence in the world.
- Cyclone Fence is installed by factory-trained experts.
- Send coupon for free booklet that tells all about fence.



For More Information Circle No. 389 on Inquiry Card-Page 17

#### **Guided Missile Program**

(Continued from page 324)

issued by the director of material on the divisional level.

(c) The Buyers' Guide—This also is published by North American Aviation and distributed throughout the corporation. It contains a list of qualified sources of materials meeting military, federal, and other specifications.

(d) Approved Source Manual
—This lists suppliers who are
approved for certain process specifications such as heat treating,
welding, and anodizing.

(e) Buyers' Routing Guide— This is published by our traffic department. It sets forth the central shipping points throughout the U. S. for carload lot shipments, and aids buyers in routing material from distant points.

All commitments made by any section in our purchasing department are consolidated with two reports. One shows the amount of purchase orders that each section has issued and the dollar amount involved; the other shows the dollar commitments among suppliers for each fiscal year.

Case histories are maintained on all contacts, procurement negotiations, and awards that pertain to a specific part number. All commitments are "policed" to make certain that those for materials for any specific project do not exceed the budgetary limitations originally established by our contracts and proposals department.

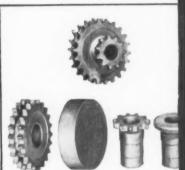
In order to help our suppliers understand our organization and its problems, and vice veresa, we have established a periodic suppliers' symposium to which key executives are invited. The agenda includes brief talks by Rocketdyne management, a plant tour, and a visit to our propulsion field laboratory. By asking suppliers of a specific commodity to attend, we are able to tailor each meeting to provide maximum exchange of information by arranging discussions and tours pertaining to specialized products.

To coordinate our procurement efforts with the work of other Rocketdyne groups, we have rep-

(Please turn to page 330)



#### JOIN WITH HANDY &



- ★ Before, sprocket was machined and hobbed from solid metal, then welded. Now, three stampings are EASY-FLO-brazed to turned hub.
- Result-sprocket made stronger in less time, with less metal.



#### TAKE TWENTY

BULLETIN 20 tells you why high strength, speed and economy are inherent in EASY-FLO brazing. Also gives Handy information about joint design and fast brazing methods. We'll be pleased to send you a copy.



For Ma

#### **Guided Missile Program**

(Continued from page 328)

resentatives permanently stationed in engineering, planning, scheduling, costs and proposals departments; each new design released by engineering to manufacturing is referred to a "make or buy" committee, which has a purchasing representative and meets daily.

When the latter committee decides to buy, Rocketdyne's quality control division prepares a summary of rejections and deviations in previously-purchased items of a similar nature in order to help one of our buyers determine who should receive invitations to bid. Thereafter, at weekly meetings held by representatives of Rocketdyne's final assembly, engineering, quality control, shop control, and purchasing departments, efforts are made to resolve any actions that should be taken to assure on-schedule deliveries.

All new proposals received by Rocketdyne are forwarded to our purchasing department, where statistical data on the cost of previous engines and assemblies are used to prepare an estimated cost of purchase materials. This estimate is relayed to Rocketdyne's contracts and proposals division, where it and estimates from manufacturing and engineering divisions are consolidated into a final estimate for the customer.

Examples of how our buyerexpediting teams have been able to save money by recommending the use of such things as die forgings in place of machined metal parts are too numerous to be discussed in this article. However, we do wish to point with pride to a cost-cutting technique that has been outstandingly effective in the procurement of valves.

Because they are both numerous and varied, Rocketdyne valve designs cannot be simultaneously released; and over a period of time, our buying personnel noticed that many valves contained common parts which were being made with duplicate tooling. Consequently, a data sheet was prepared and it was discovered that valves in any given family using common parts might be fabricated

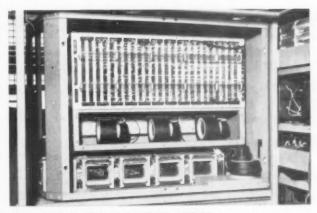
(Please turn to page 332) .

#### THE NATIONAL SCENE

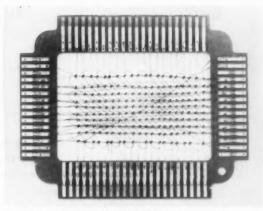


KEEPING "ELECTRONIC BRAINS" FROM LOSS OF MEMORY. One of wience's greater marvels is IBM's 705 Electronic Data Processing Machine which makes intricate calculations and logical decisions in millionnts of a second. Heart of this electronic "wizard" is its main magnetic core memory. Designed for use with the machine's high-speed printer is the IBM 760 Control and

Storage Unit containing its own core memory of 1,900 positions which allows central processing to continue in the 705 while other data are being printed. Helping the 760 remember what information is to be printed is a job for Phissorra's Laminated Plastic. Phissorra's unique combination of properties makes it ideal for this application.



MOST ADVANCED FORM OF ELECTRONIC STORAGE. The 1,000-position core memory for the IBM 760 Control and Storage Unit—a portion of which is shown here—consists of pinhead size cores strong on copper-wired frames of Physolith Electrical impulses, passing through wires, after the magnetic state of cores so that a group of them stands for a word or figure. Reversing the process recalls information from storage. Pinsworth frames safeguard the circuit and permit stacking of core planes as shown.



PHENOLITE MEETS CRITICAL STANDARDS. Core frames like the one shown are punished out of laminated Punsourre by IBM. Each frame has printed circuit type terminal strips and soldered connections. Prinsourre proves an ideal material for this application because it is mechanically strong and stiff, punches cleanly, etches well, remains llat, has high dielectric properities and withstands the heat of dip soldering.

NATIONAL CAN HELP YOU reduce unit product cost or improve product performance at no added cost. Here's why . . . You can select the "one best material" from over 100 grades of Phenolitis, Vulcanized Fibre and National Nylon—without compromise in properties or cost. You can simplify production and purchasing with the timed delivery of 100% usable parts—from a single reliable source. You gain competitively with National's new materials and grades—the direct result of programmed materials-research.

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Junior Catalog 56Gloor truck line in America write for Bulletin 'D' and Junior Catalog 56-G.



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For More Information Circle No. 380 on Inquiry Card—Page 17

# Bands For Every Purpose



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Outstretch — Outlast all others

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#### Guided Missile Program

(Continued from page 330)

by a single vendor for much less money—not only because there would be no need for duplicate tooling, but because longer production runs would enable the supplier to operate with greater efficiency.

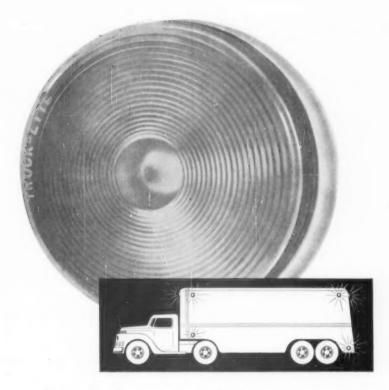
In one resultant order, which was placed with one of our more reliable subcontractors, we saved approximately \$70,000.

Purchase orders with priceredetermination clauses have also been used to advantage at Rocketdyne, especially where contract prices seemed excessive and it was difficult to estimate our vendors' production costs. In the procurement of one major mechanical component, for example, price redetermination negotiations made it possible for us to reduce an initial unit cost which exceeded \$30,000 to less than \$18,000 in a period of two years.

In purchasing proprietary items from mandatory sources, we have (through letter agreements, made on a calendar-year basis) obtained discount schedules based on a dollar volume of business awarded to North American Aviation rather than Rocketdyne alone. Because the dollar volume is cumulative, being attributable to orders placed by all of the parent company's plants, savings have been quite substantial.

For some time now, we have had a study under way with regard to the use of electronic data processing equipment in purchasing. As a result, all of our suppliers and commodities are now being identified by code numbers which can be utilized in connection with electronic systems; and, when the study is completed in 1958, we should be able to begin using data processing facilities to the greatest possible extent with a minimum loss of time.

We are also contemplating the possibility of making greater use of annual buying agreements in the procurement of relatively stable commodities; of expanding our present buyer-training program; and of using value analysis more extensively.





Rear Views showing Bulb Holders in Flush Mounted and Face Mounted Lamps



Truck-Lite created a

#### bright new idea in truck lighting

-Sylvania custom molded it

Truck-Lite's new all plastic, sealed, "throwaway" lamp unit is a light-saving, maintenance-saving idea in truck clearance and marker lamps.

Its rustproof, shatterproof plastic lens was designed by Truck-Lite and Sylvania for brilliant wide-angle illumination. Throwaway feature combined with simple plug-in receptacle is a boon to truck-light maintenance.

Custom molding of intricate parts like the Truck-Lite lens and bulb holders is just one of the reasons leading manufacturers, large and small, come to Sylvania for consultation on parts designs.

Sylvania's Parts Division also offers complete facilities for custom metal stampings, special electronic components and special wires. For complete details of these services, write for the "Portfolio of 4-way Service to Designers." The Truck-Lite lens is molded of heat-resistant methacrylate in red, green, amber and crystal. The angle of its refraction prisms (a) are molded in graduations of 1° to produce controlled illumination over a full range of 180°.

Mounting surface of the lens (b) is held to  $\pm$ .002" to insure proper seating of bulb holder and accurate positioning of the light with respect to the truck body.



# **SYLVANIA**

#### PARTS DIVISION

Sylvania Electric Products Inc., Parts Division, Warren, Pennsylvania

LIGHTING . RADIO . ELECTRONICS . TELEVISION . ATOMIC ENERGY

NIPECIAL WIRE

METAL

MOLDED PLASTIC

ELECTRONIC COMPONENTS 4.way service from one source

For More Information Circle No. 394 on Inquiry Card-Page 17

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Wherever your job is-whenever you need hose-there's a Continental Warehouse nearby stocked to give you any kind of hose you wantwhen and where you want it.

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Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

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SAN FRANCISCO 24, Calif.

1352 Egbert Ave.

SYRACUSE 3, N. Y. 739 Montgomery St.

ST. LOUIS 8, Mo. 4018 Olive St.

ATLANTA 8, Ga. 477 Eighth St., N.E.

BALTIMORE 18, Md. 15 East 21st St.

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CHICAGO 10, III. 10 West Hubbard St.

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#### CONTINENTAL STEAM HOSE

Built for work up to 100 p.s.i., this hose is tailor made with special heat-resistant rubber tube, plies of quality frictioned duck with heavy rubber separation and tough rubber cover. Sizes: 1/2", 3/4", 1", 11/4", 11/2", 2". Ask for catalog showing complete line of CONTRACTORS HOSE, HOSE FITTINGS, BOOTS and CLOTHING.

#### HOSE 64 (B)-CONTINENTA

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For More Information Circle No. 366 on Inquiry Card-Page 17





#### **JEFFERSON** it's

#### piperazine

Piperazine, in free-flowing flake form, has been added- to the Jefferson product list. Available in highest quality (average analysis: 98% piperazine), this product is important in control of large roundworms in swine and poultry, and nodular worms in swine, and it is used as an intermediate for pharmaceuticals.

Other high-quality Jefferson products include:

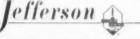
Ethylene Oxide, Glycols, Dichloride Ethanolomines Morpholine

Piperazine Polyethylene Glycols Nonyl Phenol

Surfanic® Surface-Active Agents — N Series & TD Series Ethylene Carbonate and Propylene

Jefferson Chemical Company, Inc., 1121 Walker Avc., Houston 2, Texas Essential Chemicals from

Hydrocarbon Sources



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#### BOOK REVIEWS

#### Subcontracting Policy in the Airframe Industry

by John S. Day

Harvard Business School \$4.00

Since the Defense Department is the airframe industry's principle customer, its subcontracting policies are a matter of national concern. They're, of course, of particular interest to purchasing executives both in and out of the aircraft industry. Subcontracting Policy in the Airframe Industry points out that there are three basic subcontracting methods suited to the problems of the airframe industry. They are the "assembly" method, the "package" method, and the "detail parts" method. Each is discussed in detail and purchasing agents can get useful pointers on procurement policy from the discussion. The author concludes that airframe policy is of sufficient policy to the nation that a national policy should be established with responsibility for its implementation resting with the prime contractors. The author believes that such a policy is essential to maintain a sound mobilization base and is economic even if premium costs are incurred when over-all production volume is low.

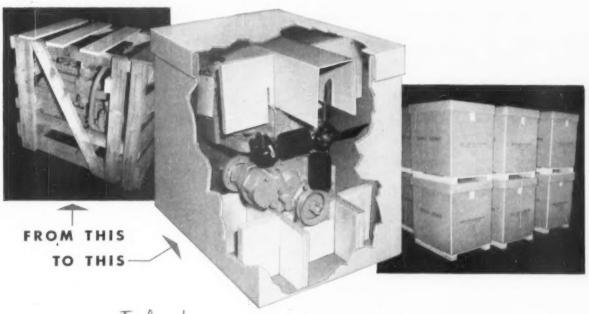
#### Modern Market Research

by Max K. Adler

Philosophical Library \$4.75

The objective of this book is to provide information on market research without being a text book. It is intended to answer a lot of questions the operating executive will have on market research. For example, what can you get in return for the money spent on a survey? How much should you expect to pay for a survey? Who should do it? These and countless other questions on market research are answered.

# HOW Inland DESIGN LEADERSHIP SAVES YOU MONEY



# Result: Iwand SAVED 100 Pounds SHIPPING WEIGHT PER UNIT for this Customer\*

● This 525-pound, 6-cylinder gasoline marine engine was shipped for years in the bulky wood crate shown above, which added 125 pounds to the shipping weight. But when Inland engineers were put on the job, they found the way to ship these same engines *more safely*, in corrugated containers weighing only 25 pounds, complete with bottom pallet.

But shipping costs weren't the only savings accomplished. The costs for packaging materials and labor were reduced more than 50% per unit! In addition, the Inland corrugated containers have sufficient compression strength to permit 2-high shipping and warehousing, and are designed to provide complete protection for the engines, even if they should be turned upside down.

Your Inland package engineer is a *corrugated shipping container specialist*. When your product packaging is entrusted to him, you can be sure you are getting the benefit of every possible packaging economy applicable to your product.

\*Name on request.

#### Inland Boxes Build Good Will

Send for this booklet fully illustrating Inland's services, facilities and products.

CALL YOUR INLAND PACKAGE ENGINEER





#### INLAND CONTAINER CORPORATION

Corrugated Fiber Boxes

MILLS: Macon, Georgia; Rome, Georgia. PLANTS AND SALES OFFICES: Indianapolis, Indiana; Middletown, Ohio; Milwaukee, Wisconsin; Evansville, Indiana; Detroit, Michigan; Macon, Georgia; Erie, Pennsylvania; Ashtabula, Ohio; Orlando, Florida; Rome, Georgia; Biglerville, Pennsylvania.

Other Sales Offices in Principal Cities . Consult Your Telephone Directory

For More Information Circle No. 395 on Inquiry Card-Page 17

#### **Purchasing Profiles**

#### "Where do we locate new sources of supply?"



# "WE RELY ON THE YELLOW PAGES"

explains W. E. Marsh, Head of Purchases Monroe Calculating Co., New Jersey

"We consider the Yellow Pages one of our most valuable reference books in our purchasing operation. They are particularly helpful in locating new sources of supply. We buy about 50% of our materials in the New York and New Jersey area. We also rely on the classified directory to find suppliers for unusual items."



Purchasing agents in every field find the Yellow Pages an indispensable source of buying information. Keep your directory handy to help you locate the suppliers and services you need!

America's Buying Guide for Over 60 Years! For More Information Circle No. 396 on Inquiry Card—Page 17

#### MRO Value Analysis

(Continued from page 134)

there is no patent infringement, we can get competition on the parts. Also, we can investigate the use of more abrasion resistant material for longer wear, and the practicability of rolled or forged parts for greater resistance to shock.

- 4. See if type 410 stainless steel can be used successfully as a substitute for types 302 and 304 for lining coal chutes and bunkers. Type 410 does not contain nickel and costs \$8.75 per cwt less than type 302 and \$11.50 per cwt less than type 304.
- 5. Incorporate in our specifications for equipment the requirement that the types of alloy steel and castings we have found best be used by the manufacturer.

#### Conclusion

The Division of Materials believes that the possibilities of value analysis should be fully explored. Some experimentation and testing will be necessary. Suggestions for improvement should be sought and carefully considered.

Everyone concerned with ordering or using materials or equipment should be constantly alert to detect the unsatisfactory and search for improvement.

The Clark Controller Company. Cleveland, Ohio, has purchased a 170,000 square foot building at 10101 Woodland Avenue, Cleveland, from Western Electric Company and the Ohio Bell Telephone Company. Manufacturers of electrical control components and systems for industrial, commercial and residential uses, the company will utilize the new building for expansion of its manufacturing and warehousing capacity. Purchase price for the facility located on 3.6 acres of land, was \$650,000. The new owner will occupy it in late 1957, after the other companies transfer their operations to Western Electric's new plant at Solon, Ohio.

# COPPER ALLOY BULLETIN

Getting More For Your Metal Dollars with Bridgeport High I. Q. Alloys



#### A New, Improved Alloy for Electrical Contacts

Another recent Bridgeport development of particular interest to the electrical, electronics and radio industries is Bridgeport Contact Bronze, Alloy #92.

The field of application for Contact Bronze is extensive, but its primary use is for electrical contacts. Its composition is: 89.0% copper, 8.95% zinc, 1.90% tin and 0.15% phosphorus.

The addition of phosphorus gives superior spring properties to the alloy in the various hard rolled tempers and permits more difficult forming operations to be performed without impairing the spring properties. A fine grain structure also gives Contact Bronze excellent fatigue resistance.

#### Quick Way To Solve Your Metals Problems

Brass, copper and bronze alloys are all available in a widely varying range and combination of characteristics. Some are free-cutting, some have unusual ductility, others intrinsic hardness and still others high tensile strength. For best results. however, the metal should be matched to the job, both from the standpoint of machining as well as eventual product use. An easy way to get the answer to these questions is to talk over your metals selection problems with your Bridgeport salesman. Backed by Bridgeport's Technical Service, he can give you the finest possible help in solving your metals problem.

# Putting Value Analysis to work on Brass and Copper parts



Today's purchasing goes far beyond the selection of suppliers, follow-through on orders and inventory control. Modern creative purchasing calls for an analysis of every part of a product before it is bought to see where unnecessary costs can be eliminated...analyzing a part's function, its design and construction, how it is made and the material it is made of.

When it comes to copper or brass—or any metal, for that matter—it will pay you to ask your Bridgeport Salesman, "What can you suggest to help us reduce costs and improve quality?"

FOR EXAMPLE: A manufacturer of a fuel-oil pump unit set up the following specifications for a small but vital brass insert used in the unit. The part had to be completely resistant to fuel corrosion, suitable for machining to a special form and to close tolerances. The metal also had to take a good sur-

face finish.

Original specifications called for leaded phosphor bronze, until a Bridgeport Salesman made an onthe-spot value analysis. He found out that all of these requirements could be met with Bridgeport Duronze #707 (Aluminum Silicon Bronze)... at a substantial savings in raw materials cost. Machining time of Duronze was slightly greater, but Bridgeport's Technical Service in cooperation with the machine operator offset this by developing the setup for most economical production.

With the help of Bridgeport's Technical Service, your Bridgeport Salesman can often help you get the most effective machining of your alloys.

Call your Bridgeport Sales Office today. Take advantage of our specialized copper and brass know-how in your drive for extra value. You'll be glad you did.



#### BRIDGEPORT BRASS

Bridgeport Brass Company, Bridgeport 2, Connecticut • Offices in Principal Cities In Canada: Noranda Copper and Brass Limited, Montreal

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to see what flexible shafts can do for your equipment





To test out experimental designs



For remote controls on existing machines



For power drives on existing equipment

Here's an exciting new development which allows you to introduce the advantages of flexible shaft drives and controls into your equipment without detailed, time-consuming engineering.

S. S. WHITE STANDARD Flexible Shafts are complete, ready-to-install flexible shaft units designed for immediate attachment to your equipment. They are available in three popular sizes for both remote control and power drive.

Immediately available in standard 3-foot lengths, they can also be obtained on order in any other specified lengths to meet your requirements.



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For More Information Circle No. 398 on Inquiry Card-Page 17

Where you want nothing to grow



Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots,

... Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth.... Reduces fire hazard by eliminating flammable vegctation close to industrial locations..., Finishes such hardy pests as poison ivy, wild honeysuckle, bind-weed, crabgrass... Cuts ground maintenance costs drastically... One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the minute booklet on weed control. See your Dolge Service Man



For More Information Circle No. 399 on Inquiry Card-Page 17



- LEAK-PROOF ONE-PIECE CONSTRUCTION . . . bourdon tube fused to socket and tip by exclusive "Conoweld" process.
- STURDY "MARSHALLOY" CASE ... formed of boiler-plate-thickness steel, copper clad inside and outside to give it the corrosion resistance of solid copper. It's one third lighter, but four times stronger than cast iron.
- PRECISION "MASTERGAUGE" MOVEMENT... with such exclusive features as the coined sector gear.
- AVAILABLE WITH STAINLESS TUBE AND SOCKET... choice of stainless steels and alloys for all corrosive conditions.
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These features are combined only in "Mastergauge", standard bearer for the broad line of Marsh Gauges . . . each the best of its kind. Ask for data.

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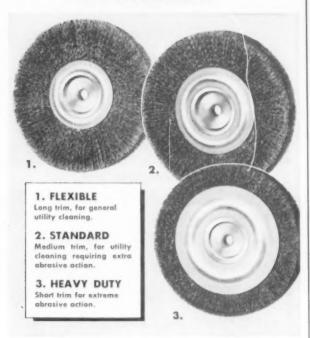
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For More Information Circle No. 400 on Inquiry Card—Page 17
Purchasing

Exact Brushing Surface and Strength for Every Brushing Job with...

# Pittsburgh RED CENTER Brushes



Made with specific gauge, high-quality wire, mounted in specially designed hubs

- •Pittsburgh's Red Center Power-Driven Brushes are built for heavy duty operation. Their distinctively colored hubs, with the exact surface and strength required, assure you precision brushing. They are constructed so accurately you get even distribution of wire around the hub. That's why you get longer brush life, faster cutting and finer finishing.
- We have been solving brushing problems in a wide variety of industries for many years. Our long experience in this field can save you time and money. Write Pittsburgh Plate Glass Company, Brush Division, Dept. P-67, 3221 Frederick Avenue, Baltimore 29, Maryland,

#### PITTSBURGH

Power Driven BRUSHES

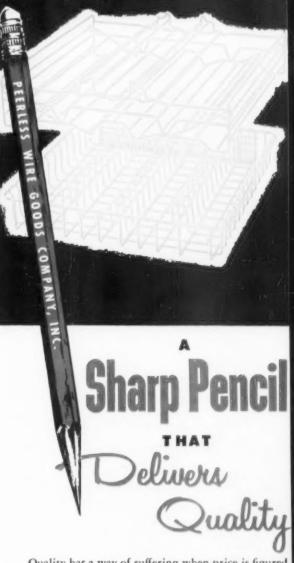


BRUSHES . PAINTS . GLASS . CHEMICALS . PLASTICS . FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA CANADIAN INDUSTRIES LIMITED

For More Information Circle No. 401 on Inquiry Card—Page 17 For More Information Circle No. 402 on Inquiry Card—Page 17→



Quality has a way of suffering when price is figured on wire goods because the margin between cost and quotation can be increased by sacrificing quality.

Not so, however, at Peerless, for our facilities and experience have been delivering quality and price for nearly 50 years.

When formed wire products are a factor in your production costs, check with Peerless and be assured of quality at the lowest price.

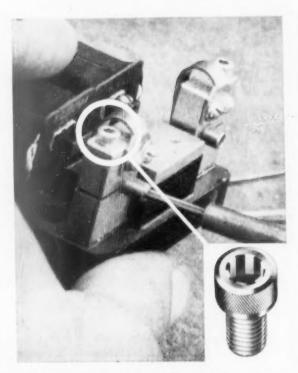
Your blueprints and specifications by mail will bring you a quotation based on design know-how and experience in producing quality to a price.



WIRE PRODUCTS

PEERLESS WIRE GOODS COMPANY, INC. 2701 FERRY STREET - LAPAYETTE, INDIANA

Peerless Products Please



#### They called off test after 20.000.000 operations...

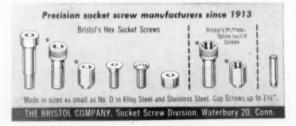
The Bristol Multiple-Spline socket screw still held fast though customer engineers had expected only 2,000,000 operations!

The screw locked and held critical contact adjustment to 0.001" in an ultra-reliable polar telegraph relay. Test was run by the manufacturer, Automatic Electric Company, Chicago, makers of telephone and communication equipment and electrical control devices for industry.

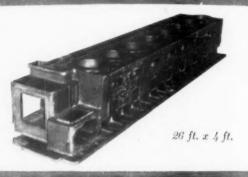
During the 20,000,000-cycle life test, the 0.006" contact space did not exceed the 0.001" allowable tolerance. This was made possible by the Bristol cap screw which locked the adjustment screw in place. This relay-using 4 Bristol socket screws in allnot only has to hold adjustment under operating shocks, but has to operate reliably under extremes of temperature and humidity in outlying railroad telegraph stations. The Bristol screws assure easy adjustment or disassembly when needed.

Reports like this are typical of the outstanding performance Bristol socket screws are giving hundreds of manufacturers of fine products-ranging from electric razors to guided missiles.

Bristol offers the most complete line of socket screws on the market. Hex socket screws-the industry standard-as well as Multiple-Spline. Cap, set, and with every style of point. Sold through leading industrial distributors, Ask for complete data on them today.



For More Information Circle No. 403 on Inquiry Card-Page 17



# RECISION

CEMENT BONDED SAND METHOD

NGINEERING COMPANY

Phone Casting Sales Dept.

361 Derbyshire Street Chumbershers Pa

For More Information Circle No. 404 on Inquiry Card-Page 17

#### TO PURCHASING DEPARTMENT PERSONNEL

AT THE PRESENT you are reading a copy of Purchasing Magazine most likely addressed to the head of your department . . . or an assistant.

YOU WELL KNOW that the contents of this publication definitely helps you do a better purchasing

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WE SHALL then enter a one year subscription for you and bill you (or your company) at a later date—at the one year rate of \$4.00.

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Granite Surface Plates • Groove Gages • Internal & External Thread Gages • Magnetic Drum Memory Devices for Computing Systems DIVISION OF BRYANT CHUCKING GRINDER COMPANY For More Information Circle No. 405 on Inquiry Card—Page 17

# One glance at a row of Equipto Steel Shelving with its fully labeled shelves, drawers, bins, and compartments, all arranged in perfect working sequence SPELLS SAVINGS IN TIME AND EFFORT!!! Exclusive steel stud permits 60% faster shelf adjustment on 1½" centers without nuts, bolts, or tools. Any shelving unit may be moved without disturbing balance of assembly. You can vary arrangement of drawers, dividers, or shelves to suit changing storage needs. Write today for

Write today for labor-saving free booklet, HOW TO SOLVE YOUR STORAGE PROBLEMS."

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For More Information Circle No. 406 on Inquiry Card—Page 17 JUNE, 1957

# You'll save time and money with Pittsburgh Brushes

Many professional painters know they'll work faster and better with Pittsburgh Brushes—Gold Stripe or Red Stripe. Made with the finest available bristles, these brushes give you greater carrying capacity, ease of release. Because they're so well balanced, you paint more easily and with less fatigue.

• Gold Stripe Brushes are made with finest pure China bristles. Red Stripe Brushes are available with pure hog bristles, 100% Tynex Nylon bristles, and scientific blends of pure and synthetic bristles. For the address of the Pittsburgh Brush supplier nearest you, write Pittsburgh Plate Glass Co., Brush Div., Dept. P-67, 3221 Frederick Ave., Baltimore 29, Md.



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For More Information Circle No. 407 on Inquiry Card-Page 17

341

#### Techniques for Controlling Inventory

(Continued from page 80)

similarly purchased and on the 25th, we review and purchase category III items. Thus we are able to place one mass purchase order with each vendor to cover our total month's requirements. If we reach the emergency 10-day supply order point before the normal purchase period we may place an off-cycle order for a full 45-day supply.

We call this system "Cycle Ordering." With it we have reduced considerably the number of purchases needed to maintain the supply of these fast moving materials.

Due to the constantly comping design of process equipment, we absorb considerable quantities of surplus material. Sometime this material may be obsolete at one location but there may be use for it elsewhere.

In order to generate greater inter-plant use of this material, we publish a Surplus Catalog giving full descriptive information including value, condition, etc. We placed a copy of this publication with every person or department whose planning or designing responsibilities make them potential users of surplus material. Revisions, giving up-to-date informa-

tion, are released every 10 days.

All of these devices for putting the brakes on runaway inventory investment are basically simple and efficient. While they are tailor-made to suit our particular problems, the program shows nevertheless that it is not necessary to resort to highly technical analysis to establish effective inventory control.

Our program is the result of the cumulative effort of our storekeepers, stock men, purchasers, accountants, maintenance men, in fact, everyone who holds the slightest interest in bettering stores service and operation. At present we are getting 6.6 annual turns on our investment. We did it ourselves. You can, too!

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Undisplayed (want ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded without charge.

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

#### Help Wanted

Industrial or Mechanical Engineer to participate in Value Analysis Program and trouble shooting concerning the purchasing of components and manufacturing services. May participate in the selection and procurement of machinery and tools. Must be capable of analyzing designs and processes and making economic cost analyses. Ronson Corporation of Pennsylvania, Delaware Water Gap, Pennsylvania.

Excellent Sales Opportunity for an aggressive

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uct is heavily advertised resulting in a steady

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Consists of:

6—Motor Driven Trams 6—Motor Operated Hoists

Miscellaneous Columns, Posts and Shelving to cover an area of approximately 27,000 sq. ft. This system is operating in a plant with column spacing of 30' x 40' and can be seen for the next 60 days."

Please address your inquiries to the Purchasing Department, Greenville Mills, Inc., Greenville, Mississippi.

Exempt Mississippi Use Tax Permit #50

#### **FOR SALE**

- 1. Globe Balancing Machine including motor in good condition.
- Bement-Niles-Pond planer 96 inches x 30 feet 0" 2 heads on rail and two sides heads. Operates at 20 surface ft. per min. Has all necessary motors.

#### For information write to:

Mr. George W. Norris Mgr. Service Department Metal Products Division Koppers Company, Inc. 200 Scott Street Baltimore 3, Maryland

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#### **Position Wanted**

PURCHASING AGENT: 12 years experience in metal working and fabricating industry, purchasing stainless and carbon steel, castings, miscellaneous parts, MRO supplies, etc. Interested only in permanent connection with well established company in South Central or South-eastern location. Write Box 1522, Purchasing, 205 E. 42nd St., New York 17, N.Y.

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# letters

#### LIKES REPORT FROM EUROPE

Your thought provoking report from Europe by Stuart Heinritz, April, 1957, "Competition Has Many Forms," would be of much interest to those attending our Special Conference on Foreign Operations.

W. R. Williamson Conference Exhibits Manager American Management Association New York, New York

#### **OUTSTANDING ISSUE**

I had the opportunity last night of looking over your May issue. While this is always an outstanding one, this year's is the finest I have ever seen. It far exceeds my fondest expectations.

My sincere congratulations to you and the staff.

W. N. Larkin Production Planning Manager Sargent & Company New Haven, Connecticut

#### LIST OF WELCOME BOOKLETS

You must have reviewed many welcome booklets in the preparation of your excellent article in the February issue.

Therefore I am hoping that you may be able to furnish me with a list of companies from which I may obtain samples.

These samples are needed as a guide in the preparation of our own welcome booklet.

C. Fred Harms Assistant Purchasing Agent Baldwin-Lima-Hamilton Corp. Hamilton Division Hamilton, Ohio

 We are certain that purchasing executives at the following companies will be pleased to send you copies of their welcome booklets:
 American Welding & Mfg. Com-

pany Warren, Ohio Leeds & Northrup Company Philadelphia 30, Penna.

Weldon Tool Company Cleveland 4, Ohio IBM Corporation Kingston Plant Kingston, New York

These are just a few of the companies with welcome booklets. Their booklets should give you some excellent ideas in the preparation of one for your own company.

#### ENJOYED ARTICLE IN MARCH ISSUE

In the March issue there was an article on pages 112 and 113 entitled, "Good Organization Means Good Purchasing" about Robert Gelarden, purchasing agent at Hoffman Specialty Manufacturing Corporation, Indianapolis, Indiana.

We enjoyed this article very much and would like to have three or four reprints. J. R. Wainwright

Production Parts & Materials Co. Carmel, Indiana

#### COURSES IN PURCHASING

I am interested in locating schools or other organizations which offer short, intensive courses in advanced purchasing methods and techniques.

If you could supply the names of any schools of this nature, or recommend another source from which I might be able to secure this information, I would very much appreciate it.

Donald W. Gould Agawam, Massachusetts

• One of the best courses in your area is offered at Northeastern University, Boston, Massachusetts. Given by Dr. Howard T. Lewis, it meets once a week for ten weeks. There are a number of other courses generally given in connection with some of the local associations. For this information, you may wish to write to the National Association of Purchasing Agents, 11 Park Place, New York, New York.

#### PRICELESS BENEFIT

The Martin Company has started a Facilities Research Program in our Materiel and Procurement Division. After looking at the Purchasing Editorial Index for 1956, I find that the material which has appeared in this magazine for that period would be of priceless benefit in our program.

Therefore, may I request from you information as to the possibilities of obtaining a copy of each of the Purchasing magazines published in 1956.

Norman Sheer Materiel and Procurement The Glenn L. Martin Company Baltimore 3, Maryland

• Very few copies of 1956 issues of Purchasing are available.

#### HELP ON VALUE ANALYSIS

I have the good fortune to serve as a member of a special sub-committee of the Education Committee of the National Association of Purchasing Agents. Our particular project has to do with the subject of "value analysis" with emphasis upon organization and administration of a value analysis program.

We are particularly concerned with those aspects of a company-wide program which directly affects the purchasing department. We also wish to give special attention to ways and means whereby a small purchasing department, consisting of five buyers or less, can best apply the technique of value analysis in their everyday purchasing operations.

I will appreciate very much receiving reprints of any articles previously appearing in Purchasing Magazine which may pertain to the subject of value analysis.

H. L. Johnson Purchasing Agent Westinghouse Electric Corporation Columbus, Ohio

 Advance galley proofs of May Valley Analysis Issue were provided to members of the sub-committee of the Education Committee of N.A.P.A.

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For More Information Circle No. 409 on Inquiry Card-Page 17

# advertisers

#### in this issue

A	
Abrusive Products, Inc.	
Abrusive Products, Inc.	164
Ace Drill Corn.	254
Acme Chain Corp.	296
Acme Hamilton Manufacturing Corp.	153
Alumiya Products, Inc. Accurate Spring Mfg. Co. Ace Drill Corp. Acme Chain Corp. Acme Hamilton Manufacturing Corp. Aero Mayflower Transit Co. Air Express Div., Railway Express Agency, Inc.	196
ASSESSED DIV., Railway Express	
Akency, Inc. Air Reduction Sales Co. &	237
Subsidiaries	316
Ajax Flexible Coupling Co.	158
Alan Wood Steel Co.	229
Allegheny Ludium Steel Corp.	326
Allis Chalmers Mfg. Co.	47
Allmetal Screw Products Co. Inc.	23 147
Alloy Steel Products Co. Inc.	285
Aluminum Co. of America	162
American Brake Shoe Co., National	
American Brass Co. 700	320
American Chain & Cable Co. Inc. 10	38
American Crucible Products, Co.	300
American Felt Company	275
Agency, Inc. Air Reduction Sales Co. & Subsidiaries Alax Flexible Coupling Co. Alam Wood Steel Co. Alim Wood Steel Co. Alliescheny Ludium Steel Corp. Allies Co. Alliescheny Ludium Steel Corp. Allies Chaimers Mfg. Co. Allies Steel Products Co. Inc. Allies Steel Products Co. Inc. Allies Steel Products Co. American Brake Shoe Co. National Bearing Division American Brake Stoe Co. American Crucible Products Co. American Felt Company American Felt Company American Holst & Derrick Co. American Steel & Wire Co. 186, 187, American Telephone & Telegraph Co. Long Lines Dept. American Viscose Corporation	314
American Steel & Wire Co. 196 197	244 253
American Telephone & Telegraph Co.	336
American Telephone & Telegraph Co.,	
Long Lines Dept	30
	167 25
American Telephone & Telegraph Co., Long Lines Dept American Viscose Corporation American Welding & Mfg. Co. Ameles Corporation	170
Amplex Corporation Anaconda Copper Mining Co. & Suledd Cos	
Anaconda Copper Mining Co. & Subsid. Cos. Anderson Corp.	38
Atlantic Current Press, Co.	200
Atlantic Screw Works, Inc. 208	209
August Charlemant Co. Bullet	2112
Division  Aurora Pump Div., The New York  Air Brake Co.	341
Air Deals Co. The New York	270
Aurora Pump Div., The New York Air Brake Co. Avery Adhesive Label Corp.	310
The state of the s	910
В	
Baberek & Wilcox Co., Tubular	
Babrock & Wilcox Co., Tubular Products Div. Baker-Raulang Co., The Bailton Electric Co. Baltimore & Ohio Railroad, Freight Dopt.	2453
Bulder Electric Co. The	16 274
Baltimore & Ohto Railroad Freight	214
Dept.	327
Rassick Co., The	350
Bathlebon Steel Co.	60
Rishon & Co. I	297
Black & Decker Mfg Co	97
Blake & Johnson Co., The 208.	209
Boatlitch, Inc.	69
British Co.	337
Brown Company	340
Hrvant Chucking Grinder Co	341
Hulldog Electric Products Co.	243
Baltimore & Ohio Railroad, Preight Dept.  Basslek Co., The Bath & Co. Inc., John Bath & Co. Inc., John Bethlehem Steel Co., Rishon & Co., J. Rishon & Co., J. Rishon & Co., J. Rishon & Decker Mfg. Co., Black & Johnson Co., The	
C	
Campbell Chain Company	000
Carey Press Corp.	282
Carlson, Inc., G. O.	245
Campbell Chain Company Carry Press Corp. Carlson, Inc., G. O. Carpenter Steel Co., The Alloy Tube Division Central Paper Company Central Serew Co. Century Electric Company Chambersburg Engineering Co.	
Control Depart Commence	204
Central Screw Co 2008	183
Century Electric Company	1
Century Electric Company Chambersburg Engineering Co. Chase Brass & Copper Co., Inc. Chatillon, John, & Sons	
Chatillan Jahr & Copper Co., Inc.	189
Chlcago-Latrobe	170
Cincinnati Gear Company	188
Cities Service Oil Co.	287
Classified Advertising Section	343
Claveland Cap Screw Co.	276 156
Columbia Concara Steel Div. 196 197	253
Columbus McKinnon Chain Corn	210
Consolidated Business Systems, Inc.	00.6
Chair Brass & Copper Co., Inc. Chatillon, John, & Sons Chicleago Latrobe Company Chicles Service Oil Co. Classified Advertising Section Cleveland Cap Serve Co. Cleveland Container Co., The Columbia-Geneva Steel Div., 186, 187, Columbia-Geneva Steel Div., 186, 187, Columbia McKinnon Chain Corp. Consolidated Business Systems, Inc. Container Corp. of America	191
Continental Can Company	59
Container Corp. of America Continental Can Company Continental Diamond Fibre, Div. of the Budd Co., Inc. 288.	289

Continental Felt Co.	206
Continental Rubber Works	334
Continental Screw Co	343
Continental Felt Co Continental Rubber Works Continental Screw Co. 208, 209, Cooper Alloy Corperation Cooperweld Steel Co., Onlo Seamless Tube Division Cordely & Hayes Cords Limited Div., Essex Wire Corp. Crane Company Crucible Steel Company of America 165, 193, 260, Cyclone Fence Division, U. S. Steel Corp.	309
Copperweld Steel Co., Ohlo Seamless	
Tube Division	145
Cordiey & Hayes	162
Cords Limited Div., Essex Wire Corp.	33 12
Crucible Steel Comment	12
America Steel Company of	
Cyclone Ferror Division U. S. Start	273
Corn	328
15-10 Dr. mannamanan	928
D	
Doubles Dubbas Co.	
Dayton Rubber Co	313
De Laval Steam Turbine Co.	48
Detroy Characast Ladactic Co.	141
Defroit Stamping Co	298
Disston Div. Henry H. E. Boston	28
Company Inc	174
DoAll Company, The	207
Dolge Co., C. R.	238
Douglas Fir Plywood Association	206
DuPont De Nemours & Co. Inc.	4075
E. I. 19	197
Dayton Rubber Co. 312.  De Laval Steam Turbine Co.  Denver-Chicago Trucking Co.  Detrex Chemical Industries. Inc.  Detroit Stamping Co.  Disston Div. Henry. H. K. Porter  Company, Inc.  DoAll Company, The  Doike Co. C. B.  Douglas Fir Plywood Association  DuPont De Nemours & Co. Inc.,  E. I. 19.	
E	
Eagle Lock Co., The	209
Eagle Lock Co., The 208, Eagle Mg. Co. 181, Eaten Mfg. Co., Foundry Div. Elastic Stop Nut Corp. of America Eleo Took & Screw Corp. 208, Essex Wire Corp., RBB. "Control" Div., Wire & Cable Div., Cords Limited Div. Esterbrook Pen Co., The Ex-Cell-O Corporation Exide Industrial Div., The Electric Storage Battery Co.	182
Eaton Mfg. Co., Foundry Div.	49
Elastic Stop Nut Corp. of America	169
Elco Tool & Screw Corn 208	209
Essex Wire Corp., R-B-B "Control"	800
Div., Wire & Cable Div., Cords	
Limited Div.	33
Esterbrook Pen Co., The	217
Ex-Cell-O Corporation	177
Exide Industrial Div., The Electric	
Storage Battery Co.	26
F	
Fafnir Bearings Co.	205
Fairbanks Company	286
Forest City Foundries Co.	262
Fort Howard Paper Co3rd Co	ver
Fafnir Bearings Co. Fairbanks Company Forest City Foundries Co. Fort Howard Paper Co. Soft Co. L. B.	151
0.	
G G	
Galr Company, Inc., Robert	259
Gair Company, Inc., Robert	259 211
G Galr Company, Inc., Robert Garlock Packing Co Gates Rubber Co, Gaylord Costs	259
Gair Company, Inc., Robert Garlock Packing Co. Gates Rubber Co. Gaylord Container Corporation Division of Crown Zelbesheek	259 211
Gair Company, Inc., Robert Garlock Packing Co. Gates Rubber Co. Gaylord Container Corporation Division of Crown Zellerbach	259 211 14
Gair Company, Inc., Robert Garlock Packing Co. Gates Rubber Co. Gaylord Container Corporation Division of Crown Zellerbach	259 211 14
Gair Company, Inc., Robert Garlock Packing Co. Gates Rubber Co. Gaylord Container Corporation Division of Crown Zellerbach	259 211 14 72 271
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Bukher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Anillne & File Corp. 220, General Electric Corporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gavlord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich-Guif Chemicals, Inc. Goodrich-Huff Chemicals, Inc. Goodrich Industrial Products Company B. F. Troducts Company B. Goodrich Goodrich Industrial Products Company B. Goodrich Goodrich Industrial Products Company B. F. Goodrich Goodrich Industrial Products Company B. F. Goodrich Street & Co. Inc. 3, Goodward Tree & Rubher Co., Inc. 3,	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialities, Inc. General Electric Co. Air Conditioning & Water Coolers Apparatus Division Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich-Gulf Chemicals, Inc. Goodrich-Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 9, Gould-National Ratteries, Inc. Graybar Electric Co., Inc. Graybar Electric Co., Inc. Grinnell Co., Inc. Grinnell Co., Inc. Gulf Oil Cerporation	259 211 14 72 271 221
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialities, Inc. General Electric Co. Air Conditioning & Water Coolers Apparatus Division Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich-Gulf Chemicals, Inc. Goodrich-Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 9, Gould-National Ratteries, Inc. Graybar Electric Co., Inc. Graybar Electric Co., Inc. Grinnell Co., Inc. Grinnell Co., Inc. Gulf Oil Cerporation	259 211 14 72 271 221 241 349 292 231 307 158 317 347 202 7 31
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialities, Inc. General Electric Co. Air Conditioning & Water Coolers Apparatus Division Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich-Gulf Chemicals, Inc. Goodrich-Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 9, Gould-National Ratteries, Inc. Graybar Electric Co., Inc. Graybar Electric Co., Inc. Grinnell Co., Inc. Grinnell Co., Inc. Gulf Oil Cerporation	259 211 14 72 271 221 221 221 221 317 349 292 231 158 317 347 215 227 4 4 209 7 31
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 231 307 158 317 347 202 7 31
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 231 307 158 317 347 2 227 4 4 205 227 31 227 31 227 327 327 327 327 327 327 327 327 327
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 221 307 158 317 347 229 227 4 209 7 31 209 209 209 209 209 209 209 209 209 209
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 221 307 158 317 347 229 227 4 209 7 31 209 209 209 209 209 209 209 209 209 209
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 231 307 158 317 347 2 227 4 4 205 227 31 227 31 227 327 327 327 327 327 327 327 327 327
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	259 211 14 72 271 221 241 349 292 221 307 158 317 347 229 227 4 209 7 31 209 209 209 209 209 209 209 209 209 209
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Lamp Division 61, 319, Metallurgical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodwar Tire & Rubber Co., Inc. 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208,	2559 211 14 72 271 221 241 349 231 158 317 347 2 125 227 31 229 230 317 347 209 209 209 209 209 209 209 209
Gair Company, Inc., Robert Garlock Packing Co Garlock Packing Co Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Aniline & File Corp. 229, General Electric Co. Air Conditioning & Water Coolers Abparatus Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Metallurarical Products Dept. 230, Plastics Dept. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodyear Tire & Rubber Co., Inc., 9, Gould-National Batteries, Inc. Gravhar Electric Co., Inc. Gravhar Co., The H. M. 208, Gillf Oil Cerporation  H Hander & Harman Harper Co., The H. M. 208, Hillward Chemical Co. Hinde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hvatt Bearing Division General Motors Corp.	2559 211 14 72 271 221 221 221 231 231 349 292 231 241 231 241 231 241 231 231 231 231 231 231 231 23
Gair Company, Inc., Robert Garlock Packing Co Garlock Packing Co Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Aniline & File Corp. 229, General Electric Co. Air Conditioning & Water Coolers Abparatus Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Metallurarical Products Dept. 230, Plastics Dept. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodyear Tire & Rubber Co., Inc., 9, Gould-National Batteries, Inc. Gravhar Electric Co., Inc. Gravhar Co., The H. M. 208, Gillf Oil Cerporation  H Hander & Harman Harper Co., The H. M. 208, Hillward Chemical Co. Hinde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hvatt Bearing Division General Motors Corp.	259 211 14 72 271 221 221 221 221 231 349 292 231 158 317 347 227 7 31 229 209 8 239 8 239 449 349 49
Gair Company, Inc., Robert Garlock Packing Co Garlock Packing Co Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Aniline & File Corp. 229, General Electric Co. Air Conditioning & Water Coolers Abparatus Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Metallurarical Products Dept. 230, Plastics Dept. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodyear Tire & Rubber Co., Inc., 9, Gould-National Batteries, Inc. Gravhar Electric Co., Inc. Gravhar Co., The H. M. 208, Gillf Oil Cerporation  H Hander & Harman Harper Co., The H. M. 208, Hillward Chemical Co. Hinde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hvatt Bearing Division General Motors Corp.	2559 211 14 72 271 221 221 221 231 231 349 292 231 241 231 241 231 241 231 231 231 231 231 231 231 23
Gair Company, Inc., Robert Garlock Packing Co Garlock Packing Co Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Aniline & File Corp. 229, General Electric Co. Air Conditioning & Water Coolers Abparatus Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Metallurarical Products Dept. 230, Plastics Dept. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Guif Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodyear Tire & Rubber Co., Inc., 9, Gould-National Batteries, Inc. Gravhar Electric Co., Inc. Gravhar Co., The H. M. 208, Gillf Oil Cerporation  H Hander & Harman Harper Co., The H. M. 208, Hillward Chemical Co. Hinde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hvatt Bearing Division General Motors Corp.	259 211 14 72 271 221 221 221 221 231 349 292 231 158 317 347 227 7 31 229 209 8 239 8 239 449 349 49
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Gates Rubher Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Specialties, Inc. General Anilline & File Corp. 220, General Electric Co. Air Conditioning & Water Coolers Apparatus Division 61, 319, Lamn Division 61, 319, Lamn Division 61, 319, Metallargical Products Dept. 230, Plastics Dept. Wiring Device Div. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Hodustrial Products Company, B. F. Goodvear Tire & Rubber Co., Inc., 3, Gould-National Batteries, Inc. Gravbar Electric Co., Inc. Gravbar Corp. Gulf Oil Cerporation  H Handy & Harman Harper Co., The H. M. 208, Hillward Chemical Co. Hinde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hyatt Bearing Division General Motors Corp. Inland Container Corp. Inland Steel Co. LT-E Circuit Breaker Co., Switcheser	250 211 14 72 271 221 221 231 202 202 203 203 203 215 227 7 31 209 209 209 209 209 209 4 4 4 209 209 209 209 209 209 209 209 209 209
Gair Company, Inc., Robert Garlock Packing Co. Garlock Packing Co. Garlock Packing Co. Gates Rubber Co. Gaviord Container Corporation Division of Crown Zellerbach Corporation Gear Speciaties, Inc. General Aniline & File Corp. 229, General Electric Co. Air Conditioning & Water Coolers Abparatus Division 61, 219, Lamp Division 61, 219, Lamp Division 61, 219, Lamp Division Metallurarical Products Dept. 230, Plastics Dept. Gerrard Steel Strapping Div., U. S. Steel Corp. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Gulf Chemicals, Inc. Goodrich Industrial Products Company, B. F. Goodyear Tire & Rubber Co., Inc. 9, Gould-National Batteries, Inc. Gravhar Electric Co., Inc. Great Lakes Screw Corp. 208, Grinnell Co., Inc. Gravhar Electric Co., Inc. Gravhar Electric Co., Inc. Gravhar Co., The H. M. 208, Hillward Chemical Co. Hilde & Dauch Horsburgh & Scott Co. Houghton & Co., E. F. Hyatt Bearing Division General Motors Corp.	259 211 14 72 271 221 221 221 221 231 349 292 231 158 317 347 227 7 31 229 209 8 239 8 239 449 349 49

J	
1-11	
American Cyanamid Co.	334
Jefferson Chemical Co., Inc. Sub. of American Cyanamid Co. Jenkins Bros. Johnson Gas Appliance	ver 270
K	
Kex National Service	320
	163
L	
Lamson & Sessions Co., The208, 209.	279
Lavelle Aircraft Corporation	195
Lamson & Sessions Co., The 208, 209, Lavelle Aircraft Corporation Lebanon Steel Foundry Linde Company of Union Carbide Corporation Link Ref. Co.	965
Link-Belt Co.	21
Lustra Corp.	267 46
Link-Belt Co. Lunkenhelmer Company Lustra Corp. Lyon Metal Products, Inc.	63
M	
Macklin Co. Manning, Maxwell & Moore, Inc., Shaw-Box Crane & Hoist Div. Marsh Corp. Jas. P. Master Electric Co. Mine Safety Appliance Co. Minneanolla-Honeywell Regulator Co., Industrial Div.	175
Manning, Maxwell & Moore, Inc.,	004
Marsh Corp. Jas. P.	338
Master Electric Co.	171
Minneapolia-Honeywell Regulator Co.	179
Minicapolis-Honeywell Regulator Co., Industrial Div. Mohawk Tools, Inc. More Business Forms Mt. Vernen Casting Corp.	70
Mohawk Tools, Inc.	157 219
Mt. Vernon Casting Corp.	32
N	
National Bearing Dieleton Associate	
Brake Shoe Co	320
National Lead Company	299
National Screw & Mfg. Co. 208	209
National Bearing Division, American Brake Shoe Co. National Lead Company National Lock Co. National Screw & Mfg Co. 208, National Screw & Mfg Co. 208, National Seal Division, Federal- Mogul-Bower Bearings, Inc. National Supply Co. Spang-Chalfant Div.	36
Div. Spang-Chalfant	311
National Tube Co.	253
National Vulcanized Fibre Company Newark Wire Cloth Co.	231
Div. National Tube Co. National Vulcanized Fibre Company Newark Wire Cloth Co. New Departure Div. of General Motors	
New York Twist Drill Company	74 315
Motors New York Twist Drill Company Nutting Truck & Caster Co.	332
0	
Oakite Products, Inc. Ohio Brass Company Ohio Seamless Tube Div. of Copperweld Steel Co. Osborn Mfg. Co.	168
Ohlo Seamless Tule Div.	51
Copperweld Steel Co.	145
Osborn Mfg. Co.	43
P	
Page Steel & Wire Div. 10, Parker-Kalon Div., General Amer. Trans. Corp. 208, Peerless Wire Goods Co. Perkins Machine & Gear Co. Phelos-Dodge Copper Products Corp. 222	11
Parker-Kalon Div., General Amer.	000
Peerless Wire Goods Co.	209
Perkins Machine & Gear Co	202
Corp. 322	222
Pheoll Mfg. Co. 208.	209
Plymouth Rubber Co., Inc.	331
Polyken Products Div. of Kendall Co.	39
Proto Tool Company	121
PURCHASING MAGAZINE 332.	340
Phelos-Dodge Copper Products Corp. Corp. Pheoll Mfg. Co. 208 Pittsburgh Plate Glass Co. 239, Plymouth Rubber Co., Inc. Polyken Products Div. of Kendall Co. Powell Valves Proto Tool Company PURCHASING MAGAZINE 322. Purolator Products, Inc. Putnam Tool Company 53, 54, 55,	62 56
0	
Quaker Pubber Division of 11	
Quaker Rubber Division of H. K. Porter Company, Inc.	176
R	
Radio Corp. of America, Tube	
Div. 228. Railway Express Agency, Inc., Air Express Div.	239

# Goodrich-Gulf Chemicals, Inc.



#### NEW DEVELOPMENT:

Goodrich-Gulf introduces Ameripol "crumb rubber" to save you processing equipment and cost

ALL Ameripol hot polymers are now available in the form of crumb rubber — developed and introduced by Goodrich-Gulf Chemicals.

This innovation in butadiene-styrene rubber is of particular value to manufacturers of rubber adhesives, mastics, cements, or other products where the rubber raw material must be put in solution before processing. Here the need for milling or chopping equipment and operations is eliminated, and the Ameripol crumb rubber can be processed as received.

In molding and extrusion too, the use of crumb rubber cuts costs. Manual cutting of conventional bales of rubber to exact weight can be eliminated.

Ameripol hot polymers in crumb form have been fully evaluated in use, and are now available in production quantities. More than ever, Ameripol is the preferred man-made rubber. Contact us for your requirements.

THE NAME TO REMEMBER FOR

QUALITY BACKED BY YEARS OF

RESEARCH AND EXPERIENCE

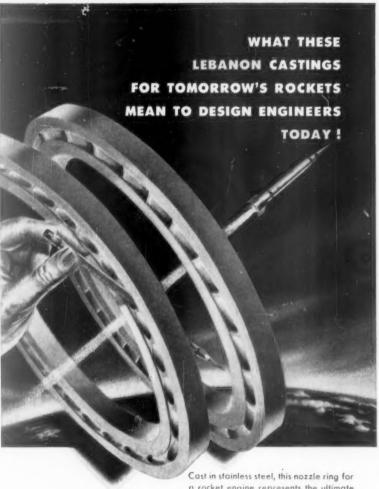


Cold Non-Oil Polymers Cold Oil-Extended Polymers Hot Non-Oil Polymers

Goodrich-Gulf Chemicals, Inc.

3121 Euclid Avenue . Cleveland 15, Ohio

For More Information Circle No. 410 on Inquiry Card-Page 17



Cast in stainless steel, this nozzle ring for a rocket engine represents the ultimate in intricate casting design. The absolute accuracy of core placement, its close

tolerances, its thin metal sections, its internal quality—these exacting requirements foreshadow the foundry techniques of tomorrow, now being employed at Lebanon today.

THIS CAST NOZZLE RING FOR REACTION MOTORS will help power a rocket into outer space. With the successful production of this casting, Lebanon Steel Foundry stands at the very frontier of its industry. What significance does this have for you? Simply this . . .

If your project utilizes cast steel in any form, you will gain by contacting Lebanon Steel Foundry during its initial design phase. Our superior knowledge and experience is available to you at the time when they can most effectively produce quality improvements and cost savings.

The most difficult casting requirements—close tolerances, smooth surfaces, dimensional accuracy, intricate metal sections and internal integrity—are being met daily at Lebanon, and this vast fund of foundry know-how is available to you.

Send us your blueprints. Our foundry engineers welcome the opportunity to share their experience with you.



Write for Lebanon's Design File "F"

#### **LEBANON STEEL FOUNDRY**

148 LEHMAN STREET LEBANON, PENNSYLVANIA
CARBON, LOW ALLOY AND STAINLESS STEEL CASTINGS
For More Information Circle No. 393 on Inquiry Card—Page 17

Corp.	33
Corp. Redmond Co., Inc. Reliance Electric & Engineering Co. Remington Rand, Div. of Sperry Rand Corp.	194 255
Remington Rand, Div. of Sperry Rand Corp.	
Republic Steel Corp142,	216 143
Corp. Republic Steel Corp. 142, Reynolds Metals Co. 283, theem Manufacturing Co. Rheads & Sons, J. E. Riesel Paper Corp. Riverside-Alloy Metal Div., H. K. Forter Company, Inc. 200, Fockford Screw Products Co. 208, Locking's Sons Co., John A. 139, Lollway Bearing Company Lome Cable Corp. Loyal Metal Manufacturing Company	66
Rheads & Sons, J. E.	304
Riverside-Alloy Metal Div., H. K.	200
Porter Company, Inc.	178
toebling's Sons Co., John A139,	325
Rollway Bearing CompanyRome Cable Corp.	296
Royal Metal Manufacturing Company	301
	4.0
Rust-Oleum Corporation	71
o	4.1
Sundusky Foundry & Machine Co.	993
Scott Paper Company173,	277
Sandusky Foundry & Machine Co Scott Paper Company	209
Screw Research Association208, Sealmaster Div., Stephens, Adamson Mfg. Co.	166
Mfg. Co. Security Steel Equipment Corp	223
Shakeproof208, Shell Chemical Corp.	209
Shenango Furnace Co., The	184 159
SKF Industries, Inc.	27.9
Sku, Corp., Industrial Tools	65
Socony Mobil Oil Co., Inc148,	149
Spang-Chalfant Div. National Supply	209
Company	311
Standard Oil Company	68
Standard Pressed Steel Company 6, 240, 248, Sterling Bolt Co. 208, Steward Warner Corp., Alemite Dept. Swingline, Inc. Lighting Division	249
Sterling Bolt Co	209
Swingline, Inc.	225
Lighting Division	201
Parts Division Synthane Corp.	333
	01
Tot Paine Manufacturing Co	201
Taylor Fibre Co.	235
Taylor Forge & Pipe Works154, Technical Charts, Inc.	155
	050
Tennessee Coal & Iron Div186, 187,	253
Tennessee Coal & Iron Div186, 187, Texas Company2nd Co Thermoid Co	253 ver 257
Tennessee Coal & Iron Div186, 187, Texas Company 2nd Co Thermoid Co. Thompson & Son Company, The Henry G.	253 ver 257
Tennessee Coal & Iron Div186, 187, Texas Company	253 ver 257 152 266
Tennessee Coal & Iron Div186, 187, Texas Company	253 ver 257 152 266 199
Taf Peirce Manufacturing Co. Taylor Fibre Co. Taylor Forge & Pipe Works	253 ver 257 152 266 199 27
Tennessee Coal & Iron Div186, 187, Texas Company	253 ver 257 152 266 199 27 67 821
Tennessee Coal & Iron Div186, 187, Texas Company 2nd Co Thermold Co. Thermold Co. Themson & Son Company, The Henry G. Thomson Co., Judson L. Thres well Tap & Die Co. Timken Roller Bearing Co., Industrial Div. Tordo Fine Threading Mach. Co. Torrington Company, The Tube Turns, Inc. Typer Rubber Co.	253 ver 257 152 266 199 27 67 821 234 52
Toledo Pipe Threading Mach. Co	67 321 234 52
Toledo Pipe Threading Mach. Co	67 321 234 52
Toledo Pipe Threading Mach. Co	67 321 234 52 180
Toledo Pipe Threading Mach. Co	67 321 234 52 180
Toledo Pipe Threading Mach. Co	67 321 234 52 180 64 253
Toledo Pipe Threading Mach. Co	67 321 234 52 180 64 253
Toledo Pipe Threading Mach. Co	67 321 234 52 180 64 253 328 317
Toledo Pipe Threading Mach. Co	67 321 234 52 180 64 253 328 317 253
Toledo Pipe Threading Mach. Co	67 321 234 52 180 64 253 328 317 253
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192 308 215
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192 308 215
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192 308 215
Toledo Pine Threading Mach. Co	67 321 234 52 180 64 253 328 317 253 253 192 308 215
Toledo Pine Threading Mach. Co	67 321 1234 62 180 644 253 328 317 253 328 215 1990 278 256 306 306
Toledo Pine Threading Mach. Co	67 321 1234 62 180 644 253 328 317 253 328 215 1990 278 256 306 306
Toledo Pine Threading Mach. Co	67 3211 234 62 1800 644 253 328 317 253 328 215 190 209 278 256 306 58 281
Toledo Pine Threading Mach. Co	67 3211 234 62 1800 644 253 328 317 253 328 215 190 209 278 256 306 58 281
Toledo Pine Threading Mach. Co	67 3211 234 62 1800 644 253 328 317 253 328 215 190 209 278 256 306 58 281
Toledo Pine Threading Mach. Co	67 3211 234 62 1800 644 253 328 317 253 328 215 190 209 278 256 306 58 281
Toledo Pine Threading Mach. Co	673 234 521 523 52 180 64 253 328 317 253 325 325 325 325 325 325 325 325 325
Toledo Pine Threading Mach. Co	673 234 521 523 52 180 64 253 328 317 253 325 325 325 325 325 325 325 325 325
Toledo Pipe Threading Mach. Co	673 234 521 523 52 180 64 253 328 317 253 325 325 325 325 325 325 325 325 325
Toledo Pipe Threading Mach. Co	67 67 67 67 67 67 67 67 67 67 67 67 67 6
Toledo Pipe Threading Mach. Co	67 67 67 67 67 67 67 67 67 67 67 67 67 6
Toledo Pipe Threading Mach. Co	67 67 67 67 67 67 67 67 67 67 67 67 67 6

# Plan now to use G-E TRI GCLAD motors in ratings to 125-hp

Increased production throughout U.S. industry has created a demand for more powerful machines with greater speeds and increased capacity. To meet this demand, General Electric will soon announce a wider range of Tri-Clad '55' motors in compact . . . power-packed dimensions.

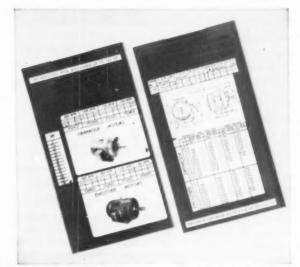
ADVANCE INFORMATION—Experienced engineers and skilled craftsmen have utilized revolutionary new materials and the most modern production techniques to pack more power into these larger G-E motors built to new NEMA standards. The more rugged, higher horsepower motors will feature easy installation, reduced maintenance, and long-life performance.

PLAN AHEAD—New Tri-Clad '55' motors can mean real savings in your plant modernization project and in new product design. For complete details on the wider range of motors, contact your nearest General Electric Apparatus Sales Office. For advance size information, send in the attached coupon for free slide rule. General Electric Company, Schenectady 5, New York.

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# FREE SLIDE RULE ADVANCE INFORMATION TO HELP YOU PLAN AHEAD



FREE SLIDE RULE—Write for free slide rule which lets you determine at a glance the weight and space-saving benefits of new Tri-Clad '55' motors up to 125-hp. This handy slide rule provides advance information to solve your design problems . . . to benefit your over-all operation.

SE	ECTION D891-2
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For More Information Circle No. 412 on Inquiry Card-Page 17

# MATERIALS-HANDLING NE

\* NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



#### Position locks secure castered equipment

Portable ladders (this one is used in a large aircraft plant), work stands, scales, scaffolds and other equipment often need to be held stationary. Bassick truck locks-easy to set or disengage with foot - provide the answer. In most cases, two locks should be used and located at opposite corners of the truck as near as possible to the caster wheel.

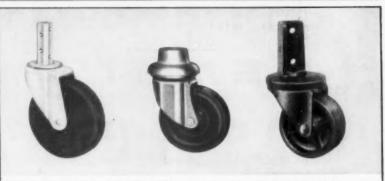
The regular position lock (above) is furnished with either flat base for regular floors or with grooved base for use with Bassick grooved wheel casters.



The new retractable position lock rides 31/4" off the floor. Allows trucks equipped with lock to clear ground obstacles.

#### Your distributor can help

Your local Bassick distributor has many standard casters, wheels and accessories in stock. He keeps needed units flowing from his stockroom into your plant.



Angle stem casters for direct application to angle iron legs. Stem is designed so that separate right and left hand types are not needed.

Pipe socket casters can be supplied with female threads for practically any equipment with pipe legs. All standard types of wheel available.

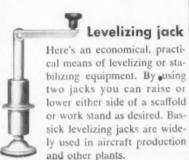
Angle plate caster has a special bracket plate (specify right or left hand plate) to be used with equipment having

#### Caster accessories solve special in-plant problems



#### Wheels for special jobs

Here, for example, are acid-resistant "Canaphin" wheels on Bassick casters used in a large chemical plant. The portable still they're carrying is used in processing fine organic chemicals. Bassick casters can be supplied with a variety of other wheels-soft, hard, or having special qualities that fit them for specific jobs.



Your local Bassick distributor can show you a variety of different caster attachment styles. Or, if your problem is a special one, he can call in a Bassick field engineer to make recommendations.

#### Wheel brake and swivel lock

This side wing brake (below left) is available on 5" and 6" Bassick "77" or "H99" series casters; can be specially fitted for other sizes. It's engaged or released by turning the wing nut.

The plunger swivel lock (below right) positively locks caster swivelling action. Standard on Milspec casters, it's also available on special order on many other Bassick casters.







For More Information Circle No. 413 on Inquiry Card-Page 17 350

For More Information Circle No. 152 on Inquiry Card-Page 17-PURCHASING



#### FORT HOWARD PAPER TOWELS

# dry more hands dryer ...because of more drying power

All kinds of hands . . . in factories, offices, institutions, schools. Big, dripping hands that really test a towel. Small, delicate hands that need a gentle touch. All hands are dried better . . . more economically . . . with the greater drying power of Fort Howard Towels.

Fort Howard Towels soak up a lot of water—one towel usually does the job—because Controlled Wet Strength keeps wet towels strong, firm, soft. Stabilized Absorbency helps keep this drying power as they age. And because they're Acid Free, they're gentle on hands.

That's why you'll be glad you have one of Fort Howard's 27 grades and folds in your washroom. Remember—Fort Howard Towels can fill any cabinet at any price. For more information and samples —call your Fort Howard distributor salesman or write Fort Howard Paper Company, Green Bay, Wis.



#### Fort Howard Paper Company

Green Bay, Wisconsin

"America's most complete line of paper towels, tissues and napkins"



for longer valve life

in a variety of corrosive services

JENKINS
NI-RESIST
GATE VALVES

Where you encounter acids, salt and alkaline solutions, sea water, brine or other corrosive fluids, vapors or gases, you'll want Jenkins Ni-Resist Type 2 Cast Iron Gate Valves with type 316 stainless steel trim. They have a remarkable ability to withstand destructive corrosion and erosion.

In paper mill service, food processing, petroleum refining, chemical plants and other process industries, Jenkins combination of Ni-Resist type 2 cast iron and type 316 stainless steel, plus Jenkins extra value construction throughout greatly extends valve life.

Designed especially for corrosive services, the Jenkins Ni-Resist line of gate valves also has superior metal-to-metal wearing qualities. Copper-free, they will not discolor or contaminate products being carried in the line. Let the famous Jenkins Diamond be your guide when choosing Ni-Resist valves . . . it means longer, trouble-free service.

#### GET COMPLETE INFORMATION

from your Jenkins Distributor, or write Jenkins Bros., 100 Park Avenue, New York 17.

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